

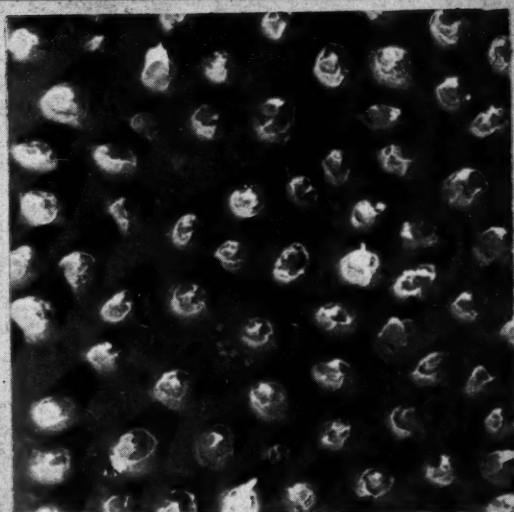
Dental Digest

January 1949

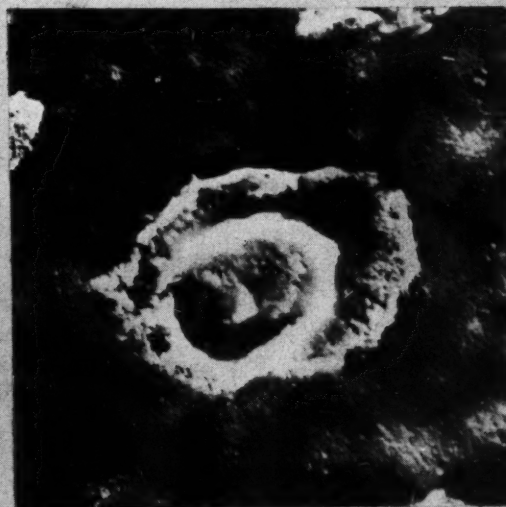
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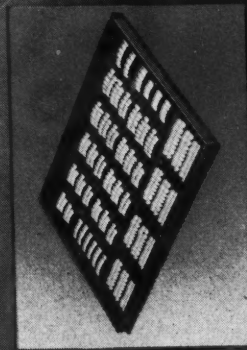


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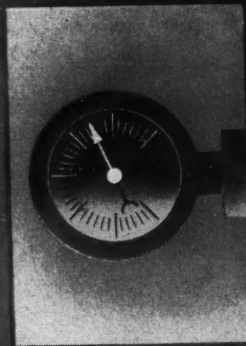
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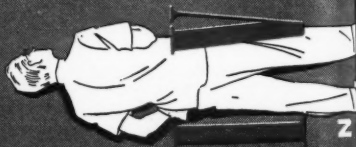


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Vol. 55 No. 1

Dental Digest

JANUARY 1949

About Our

CONTRIBUTORS

BERNARD J. GARN, D.D.S., (New York University, 1943) believes that the adoption of immediate denture construction as a routine procedure would help to eliminate "bootleg" dentistry by unqualified practitioners. In his current article, A STANDARDIZED PROCEDURE FOR THE CONSTRUCTION OF IMMEDIATE FULL DENTURES, he gives step-by-step directions for the procedure which he has found satisfactory.

ARTHUR H. SCHMIDT, D.D.S. (University of Nebraska, 1920) presents in this issue the fourth and final installment of his illustrated article on PLANNING AND DESIGNING PARTIAL DENTURES.

IRVING R. HARDY, D.M.D. (Tufts College Dental School, 1917) is a specialist in prosthodontics and has published widely on this and related subjects. In his present article, REBASING THE MAXILLARY DENTURE, Doctor Hardy describes the method that he has been using successfully for the past five years and that he has taught to both post-graduate and undergraduate students in Tufts College Dental School. The procedure takes one hour of chair time.

FREDERICK J. METZGER, D.D.S. (University of Buffalo, School of Dentistry, 1930) has been teaching oral surgery in the outpatient department of the Buffalo General Hospital since 1932. His last appearance in DIGEST was in the April, 1938 issue. This month's article OCCLUSAL AND INCISAL RECONSTRUCTION, describes a method of restoring occlusal and incisal efficiency which Doctor Metzger has used with excellent results.

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EDWARD J. RYAN, B.S., D.D.S., Editor

708 Church Street, Evanston, Illinois

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The magazine is mailed on the fifteenth of the month of issue.

A Standardized Procedure for the Construction of IMMEDIATE FULL DENTURES

BERNARD J. GARN, D.D.S., New York

DIGEST

Specific directions are given for a standardized procedure for the construction of immediate full dentures.

General Considerations

The technique of immediate denture construction is more than fifty years old yet far too few patients are afforded the benefits of this superior type of prosthetic service. The rank and file of the dental profession persist in thinking of immediate denture service as unique, to be used only in the exceptional case, not as a standard procedure of everyday practice.

Because of this attitude careful and conscientious practitioners are apt to discard the basic procedures of ordinary full denture construction when they attempt an immediate replacement. The tendency is to improvise frills and neglect fundamentals; naturally, the results are often disastrous. After one or two failures the temptation to abandon the procedure is insistent. But it must be realized that failure in immediate denture construction must be due to errors of execution and not to fallacy inherent in the procedure per se.

Actually, in theory and in practice, there are many advantages to the patient and to the dentist in immediate denture construction.

Advantages

Psychologic—The patient is never without teeth. The patient who has had to wait after extractions will remove his dentures at the slightest

discomfort and take an interminable time to accustom himself to them. The immediate denture patient, on the other hand, will suffer for a short period and quickly adapt himself to his dentures. He will do a great deal to avoid enduring the humiliation of being without teeth.

Pain and Inconvenience are Minimized—The patient undergoes the shock of surgery at the same time that he is coping with the problem of learning to manipulate dentures. He gets it all over at one time. The dentures also act as a bandage for the wounds of the surgery. This reduces pain and encourages healing.

Time Factors Eliminated—The patient who must remain edentulous for a length of time is inclined to put off denture construction until the last possible moment and then try to rush completion. The immediate denture patient will usually accept early treatment. Once the procedure is started, the dentist may take as much time as he needs to await proper healing of the posterior ridges, remake impressions, or take care of other contingencies that may arise.

Technical Considerations

Degree of Opening Established—In the construction of dentures for the edentulous mouth, the determination of the intermaxillary space is always arbitrary and often inaccurate. Where an immediate denture is constructed, however, the patient's own intermaxillary space or open or closed bite can be reproduced with a precision only possible when teeth are present.

Centric Position Determined—The presence of immovable teeth and the absence of the muscular collapse found in the edentulous mouth, leads to a simple and accurate determination of the centric position.

Tooth Selection and Setup Made Easy—Shade and mold are automatically obtained with accuracy. More important, the positioning of the anterior teeth is also automatically made.

Functional Benefits

Tissue Health Maintained—The stimulation supplied by the immediate denture bases promotes functional healing of the supporting tissues during the healing period. There is less resorption and loss of resiliency than can be obtained when the tissues are left without any covering.

Changes in Surrounding Structures Minimized—The tongue, cheeks, lips, muscles of mastication and facial expression, and the tissues of the temporomandibular joint, are not subjected to sudden and destructive change in function that accompanies extraction of all the teeth. There is no period of readjustment necessary for these tissues after dentures are inserted.

Disadvantages of Immediate Denture Construction

1. More costly in time, labor, and actual money.
2. Two complete sets of dentures, or at least a duplication of the immediate set (rebased), must be figured on.
3. In the past many unsatisfactory results have been obtained.

The first two objections can be

negated by the simple fact that immediate dentures are worth the extra trouble and expense. By correcting the errors of procedure the third disadvantage may be eliminated.

The adoption of a standardized procedure, similar to the many currently in use for constructing ordinary dentures will enable members of the profession to offer this service to their patients. But the method must be executed faithfully and with painstaking exactitude. Failure on the smallest point will cause the entire case to fail. Some dentists can make full dentures successfully with any one of a dozen techniques. Others fail with all of these techniques. Failure can always be attributed to one thing—deviation from what is correct on a single point.

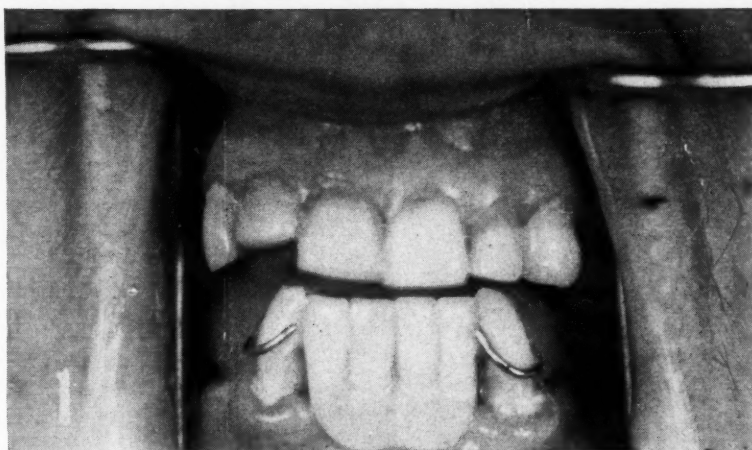
Procedure

Preparation of the Mouth—Two conflicting factors determine the amount and nature of the preliminary surgery. A sufficient number of teeth must be extracted to insure a firm foundation of healed ridge and permit taking a suitable impression with out undue interference. But enough teeth must be left in the mouth to preserve esthetics, and phonetics, and to prevent collapse of the masticatory organs.

The following steps will achieve optimum balance between these factors:

1. Extract all of the upper posterior teeth and carry out necessary trimming of the bony process.
2. Extract all the lower posterior teeth and do necessary trimming.
3. Take impressions of the mouth in an alginate material and mount on an articulator. This serves a double purpose: (a) The case can be thoroughly studied and necessary corrections in the ridge tissue made. (b) The lower four anterior teeth can be cut off the model and an immediate transitional partial denture made.
4. Extract the four lower incisors. Insert the immediate transitional partial (Fig. 1).

These steps will insure a firm bilateral bearing area for the maxillary denture; free access to all the ana-



1. Posterior teeth extracted, four lower incisors extracted, and immediate transitional partial denture inserted.

tomic structures needed for a correct impression, and for the mandibular denture three distinct areas of support as well as almost perfect access for impression-taking.

The simple expedient of extracting the lower anterior teeth and using an immediate transitional partial provides three point stability for the lower case and precludes displacement in the finished denture. At the same time esthetics, phonetics, degree of opening, centric and other oral functions have been preserved.

Taking the Impression—Most failures in the construction of immediate dentures can be attributed to a faulty impression technique. There is a marked tendency on the part of the operator to ignore the requirements of a satisfactory impression and rely on a reproduction of the mouth obtained by an alginate or hydrocolloid material. Such an impression may seem to cover all the anatomic landmarks but it cannot fulfill the requirements of tissue placement and functional border extension as carried out in an orthodox full denture impression.

If the mouth has been properly prepared, as outlined previously, the taking of a satisfactory functional impression will prove fairly simple if each of the following steps is carefully executed:

1. **Tray Selection**—Select a per-

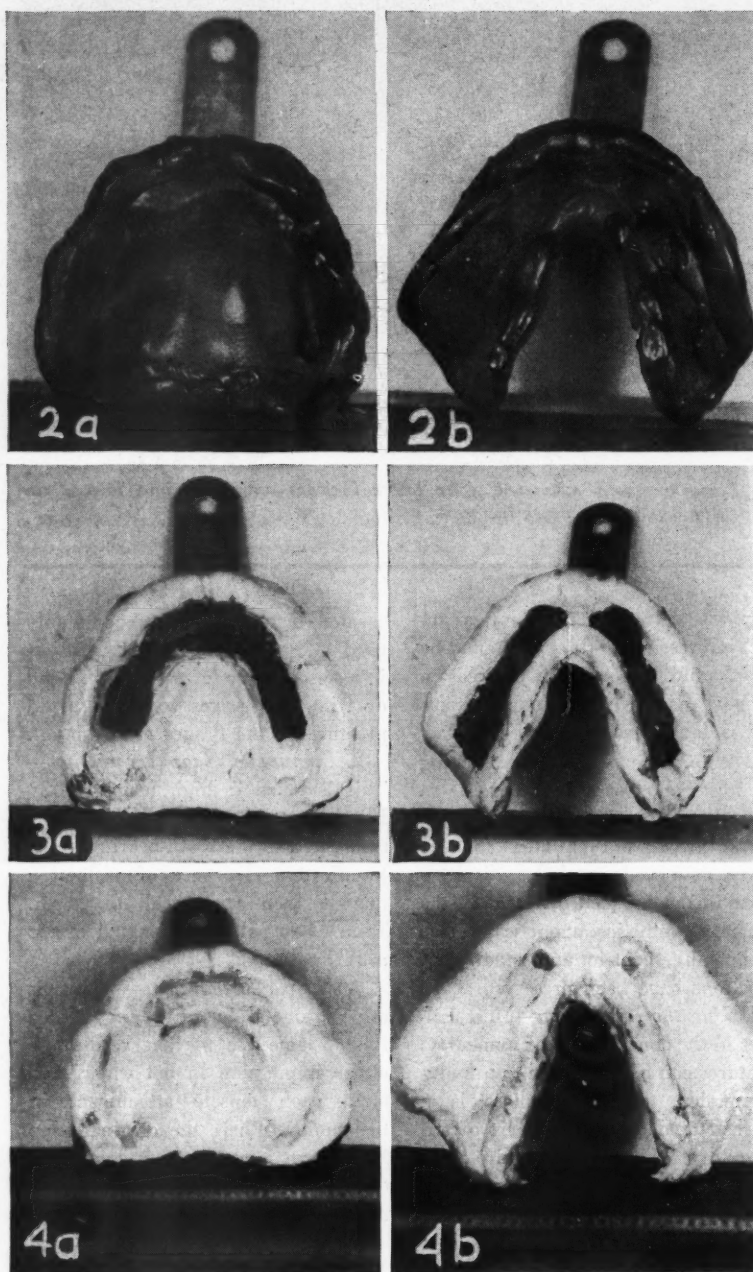
forated tray of the type commonly used for partial denture impressions in a size suitable for the mouth. Bend or trim the flanges so as to avoid pressure on the tissues at any point.

2. Compound Snap Impression—This is taken in high fusing (132° F.) compound. Then trim away the compound in the tooth-bearing areas to afford a clearance of at least a quarter inch around all the teeth. Trim away palatal or lingual excess at this point.

3. Muscle Trimming—This is done in one sector of the mouth at a time. Flame the periphery, dip the entire impression in hot water, and mold each muscle attachment in the mouth. Where the original snap impression is short, stick compound of a lower fusing range may be added to the periphery (Figs. 2A and 2B).

4. Trimming Finished Compound Impression—Adjust the border height and width by trimming with a compound knife. Relieve the ridge crest and torus areas by scraping them with a vulcanite file. Again, exercise extreme care to prevent any of the compound impinging upon the teeth or tooth-bearing ridge.

5. Oxy-eugenol Paste Wash—Test the completed compound impression for border extension, relief of muscle attachment, and stability. Now fill with a mix of oxy-eugenol impression paste and take a wash. If the



compound impression has been properly taken, the part around the tooth areas will crumble on removal of the impression from the mouth. An even thickness of paste on the rest of the impression will indicate that in those areas proper border extension and tissue placement has been accomplished.

6. Trimming of Paste Wash—Remove excess paste and again, take care to trim the tooth-bearing areas

free of surplus impression material. The torus should be relieved, as should most of the ridge areas (Figs. 3A and 3B).

7. Alginate Wash—A mix of alginate impression material is made; the impression is filled and seated firmly in the mouth. When removed the impression is not only anatomically exact, but is physiologically accurate from the standpoint of denture function (Figs. 4A and 4B).

Completion of the Dentures

Having achieved a precise functional impression, be careful to insure the perfection of each of the following supplemental steps:

1. Models—A dense mix of hard stone should be used to pour models immediately upon removing the completed alginate wash from the mouth. This avoids the possibility of dimensional change due to gain or loss of water by the alginate material (Figs. 5A and 5B).

2. Baseplates and Biterims—Construct well-adapted shellac baseplates with biterims of soft pink wax (Figs. 6A and 6B).

2a and 2b. Upper and lower compound impression, muscled trimmed.

3a and 3b. Zinc oxide-eugenol paste wash inside compound.

4a and 4b. Upper and lower impressions finished in alginate material.

3. Centric Determination—The upper baseplate is put in the mouth and the biterim trimmed to the level desired for the teeth of the upper denture, and then chilled. Soften the lower biterim by heat; insert the baseplate in the mouth and register a bite. Note that in contrast to the difficulty encountered in this step when constructing full dentures for the edentulous mouth, in the case of immediate upper and lower dentures, the step is almost automatic (Fig. 7).

4. Degree of Opening—In this stage of the procedure it is better merely to record the degree of opening found in the mouth, even though slightly closed. It is simpler to adjust the degree of opening on the articulator when setting up the teeth and confirm it at the time of the try-in.

5. Mounting Models—Make a face-bow registration with the upper baseplate and biterim in position. Transfer this to the articulator and mount the upper model. Now mount the lower model to the upper by means of the previously obtained centric bite (Figs. 8A and 8B).

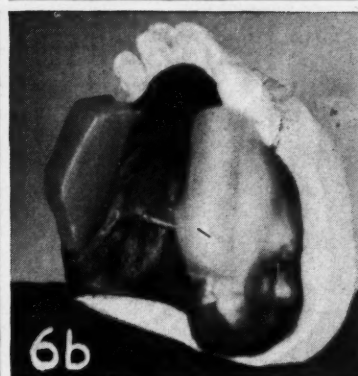
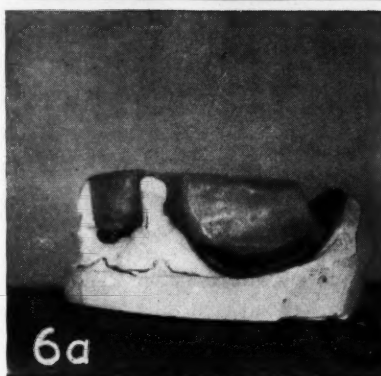
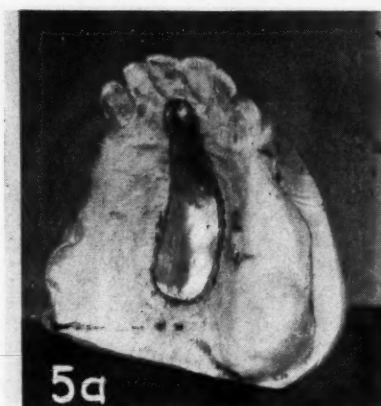
5a and 5b. Upper and lower models, trimmed and marked.

6a and 6b. Baseplates and biterims adapted to models.

6. Selection of Teeth—This step too, is automatic in the case of immediate dentures. Shade, mold, and size of teeth are merely recorded from the patient's own remaining teeth.

7. Preliminary Set-up—Construct well-adapted shellac baseplates; on these mount upper posterior, lower posterior, and four lower anterior teeth (Figs. 9A and 9B).

8. Try-in—(a) Check centric and degree of opening; remount lower cast if necessary. (b) Check posterior limit by marking the upper baseplate with an indelible pencil and transferring marking to the mouth. Now trim or add to the upper baseplate until marking corresponds to the vibrating line and the pterigoid notch. Thus determined, palpate the posterior limit with a blunt instrument; indicate the depth of the post-dam on the cast. (c) Esthetics: it may be advisable to change the position of some teeth or record individual markings to be reproduced by staining and glazing. Often it is desirable to reproduce gold inlays that were characteristic in the patient's own dentition. (d) Indications for trimming: the best rule to follow is "trim the model as little as possible, trim the mouth as much as possible." The mouth has been prepared in such



a manner that stable, well-fitting dentures have been obtained with no contact in the tooth-bearing areas. However, enough trimming must be done to eliminate undercuts on the ridges and provide the technician with sufficient intermaxillary space for a proper setup.

Processing of Dentures—Finish the dentures in the usual manner. With the procedure described the use of a transparent surgeon's guide is superfluous. It is most important to use acrylic teeth, both to minimize occlusal shock and to allow for unlimited grinding as the dentures settle.

Surgery and Insertion

Premedication—Inform the patient of the exact nature of the surgery to be performed. It is always better to overemphasize rather than minimize the difficulty of the surgical procedures. Tell the patient that there will be a certain amount of post-operative swelling and pain. Instruct him to present himself on a given morning, having had no breakfast and having taken nembutal $1\frac{1}{2}$ grains or any

other suitable sedative, one hour before the appointed time.

Anesthetic—Bilateral mandibular block injections are given. These serve the twofold purpose of anesthesia for the surgery and the prevention of gagging after insertion of the lower denture. In addition, infiltrate both lower cuspids with one carpule of local anesthetic plus 100,000 units of Penicillin G Sodium. Infiltrate the upper anterior region with two carpules of normal anesthetic agent, and two additional carpules of local anesthetic plus 100,000 units of Penicillin G Sodium.

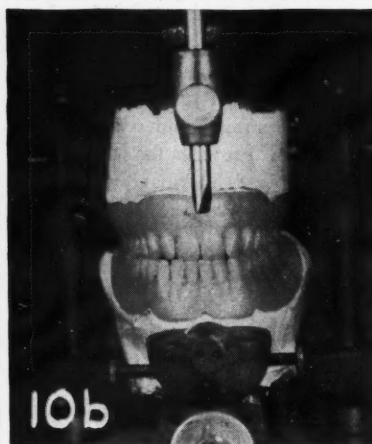
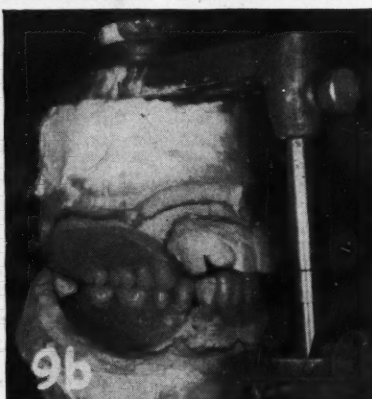
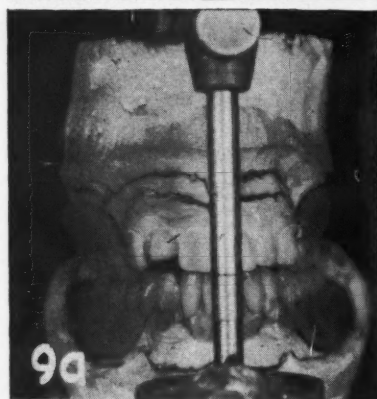
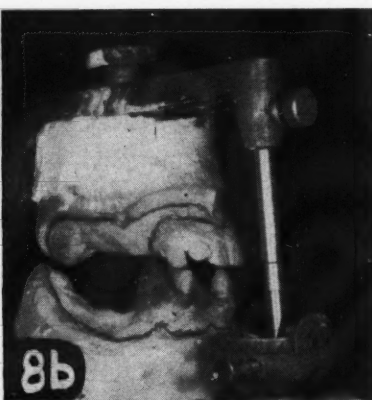
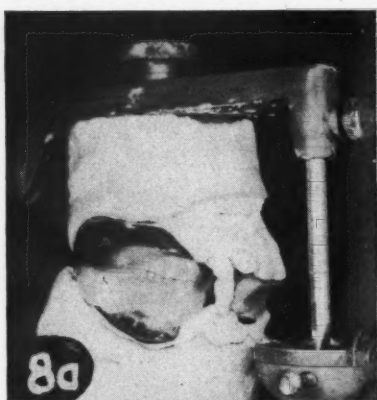
The importance of using an anesthetic agent with a powerful vasoconstrictor cannot be overemphasized. It diminishes bleeding during and after the operation and provides: (a) Bloodless field for surgery. (b) Less bleeding under denture. (c) Less postoperative swelling.

Surgery

Remove the two lower cuspids first and trim the bone with a bone file. Remove excess gingival tissue. Now try in the lower denture.



7. Centric bite preliminary to mounting models on articulator.



The lower surgery should be performed first for two reasons: 1. If the upper were done first the constant leakage of blood from the upper anterior region would interfere with the surgery on the mandible. 2. It is better psychologically to do the smaller operation first. Upon hearing that one jaw has been speedily and easily prepared for the denture, the patient will relax and be more cooperative for the remainder of the surgery.

On the maxilla, two incisions are

made lateral to the cuspids, extending from the crest of the ridge to the muco-buccal fold. Separate the buccal gingivae from the teeth with a sharp instrument. Now retract the entire labial mucous membrane from the teeth and bone with a periosteal elevator.

Next extract the six upper anterior teeth and trim the buccal plate and septal bone with a rongeurs. Remove sharp edges with a bone file. Return the flap of labial mucous membrane

into position and trim gingival excess with a tissue scissors.

Now insert the upper and lower dentures and check for stability. Necessary bite adjustment is also made at this time. If all seems to be in order, remove the dentures. Fill the lower sockets with oxycel (sterile absorbable oxidized cellulose). Fill the upper sockets with this material which serves to reduce bleeding and swelling and to minimize danger of infection. Use a continuous suture to reattach the labial mucosa. Line the dentures with an analgesic antiseptic

8a and 8b. Models mounted on articulator.

9a and 9b. Trial setup.

10a and 10b. Completed dentures remounted for occlusal equilibration by means of mounting record and wax bite.

ointment (such as butynmetaphen dental ointment) and insert the dentures. Instruct the patient to leave the dentures in position 48 hours. Tell him to clench his teeth as much as possible during that period, to apply ice-packs to the outside of the face for ten minutes every two hours, and to use hot saline irrigations in the mouth every hour. He should be given a codein-aspirin prescription for the relief of pain. Finally, suggest a diet that will insure adequate nutrition with little or no mastication.

Postoperative Treatment

1. Two days postoperatively the dentures should be removed and cleaned. Irrigate the mouth, clean away debris, and remove the sutures. Usually healing will be almost complete by this time. Reinsert the dentures and instruct the patient to keep them in the mouth continually except for the purpose of using hot saline irrigations several times daily. Also give him directions for cleaning the dentures and applying the analgesic antiseptic ointment.

2. Four days postoperatively the

patient is seen again. Mark and trim sore spots and relieve gross occlusal disharmonies.

3. One week after insertion remount the dentures on the articulator by means of an upper mounting record and a centric wax bite and check bite. (Figs. 10A and 10B). The occlusion should now be ground and milled.

4. From time to time during subsequent weeks and months minor adjustments must be performed.

Conclusion of Treatment

If each step in this standardized procedure is exactly executed the upper denture will have positive retention and the lower denture will have

perfect stability. The esthetics and the bite will be excellent. It can be explained to the patient that slight imperfections will be corrected in the second or permanent dentures.

It is obvious that because of tissue changes the dentures will gradually lose much of their stability. This loss is compensated for by the patient's gain in skill in handling the dentures. Having become accustomed to dentures that did not fit perfectly, when the final dentures are constructed on ideal ridges and under ideal conditions, the patient is thoroughly satisfied with the result. The construction of the second set of dentures should be deferred for at least six months to provide optimum ridge conditions.

Summary

A standardized procedure for the construction of immediate full upper and lower dentures has been presented.

The preparation of the mouth, impression technique, finishing of the dentures, and surgery and post-operative steps have been described in detail.

Immediate dentures should be the treatment of choice in all cases where patients in need of dentures possess a number of natural teeth. Innumerable advantages both to patient and dentist have been demonstrated and all of the so-called disadvantages refuted.

57 West 57th Street.

The Cover*



3. Cross-section through enamel (X 9,500). 4. Cross-section through dentin (X 9,500). 5. Cross-section through dentin, showing isolated dentinal fiber (X 12,000).

COVER ILLUSTRATIONS

1. Cross-section through dentin (X 2,000). 2. Cross-section through a single dentinal tubule (X 13,500).

*All pictures reproduced with the permission of the Public Health Service from the publication *Electron Microscopy of Tooth Structure by the Shadowed Collodion Replica Method*, 62:1-8 (October) 1947.

Occlusal and Incisal RECONSTRUCTION

FREDERICK J. METZGER, D.D.S., Buffalo

DIGEST

A description of a method of restoring occlusal and incisal efficiency which has contributed to the comfort and satisfaction of the patient.

occlusal surfaces. The upper anterior teeth showed some abrasion but they were still of normal length. But the lower incisors were so extensively abraded that the central incisors protruded only 3 mm. above the gingiva and the lateral incisors protruded only 4 mm. (Fig. 1).

By consultation with the patient's orthodontist it was learned that about ten years ago the lower incisors were of normal length. The patient be-

embarrassed by their unsightliness.

On account of the closed bite (Fig. 2), the problem was twofold: 1. To restore the anterior teeth to normal contour. 2. To increase the vertical dimension of the posterior teeth. There was not sufficient tooth substance remaining to obtain proper retention for porcelain or gold-porcelain jacket crowns. It was felt that opening the bite with gold inlays on the lower posterior teeth would be too extensive because the third molars were present.

After thoroughly considering these



1. Anterior view showing the amount of abrasion on the incisors and cuspids.



2. View showing the amount of overbite and loss of vertical dimension.

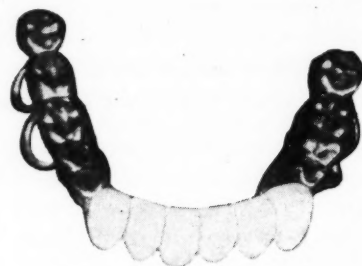
THE PATIENT was a young man about twenty-five years of age. He was referred a year or so ago when he returned from service in the army. Examination revealed a complete natural dentition. He had received good dental treatment throughout his childhood and his teeth exhibited well-placed amalgam restorations.

The posterior teeth, however, were abraded to the extent that all cusps were missing. This resulted in flat

teeth. The patient believed that the abrasion had taken place gradually but that it had been more rapid during the last three or four years during his period of service in the army.

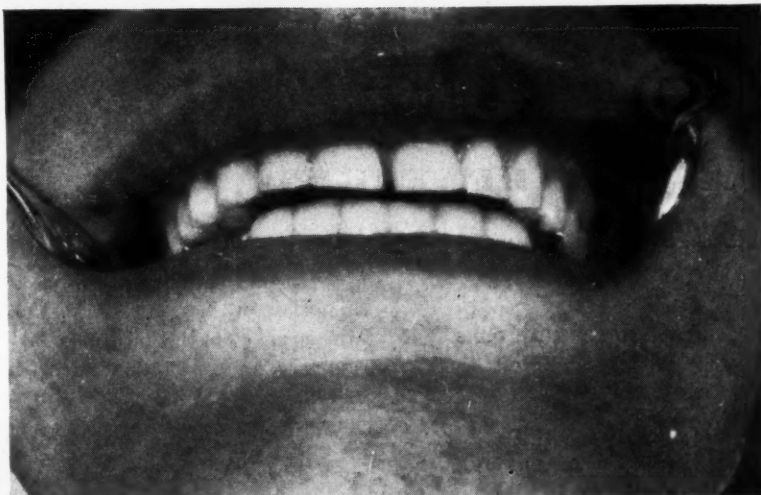
Except for the abrasion the lower anterior teeth were clinically normal. The gingiva was healthy with no periodontal involvement. X-ray examination showed the roots of these teeth to be of adequate length with healthy apices. The alveolar process appeared normal.

Because of the lack of any supporting tissue disease the patient was reluctant to submit to the extraction of the teeth. At the same time he was



3. Showing the completed appliance with continuous acrylic jackets and cast clasps and overlays.

4. Right: Anterior view with the appliance in place revealing the amount of incisal clearance obtained.

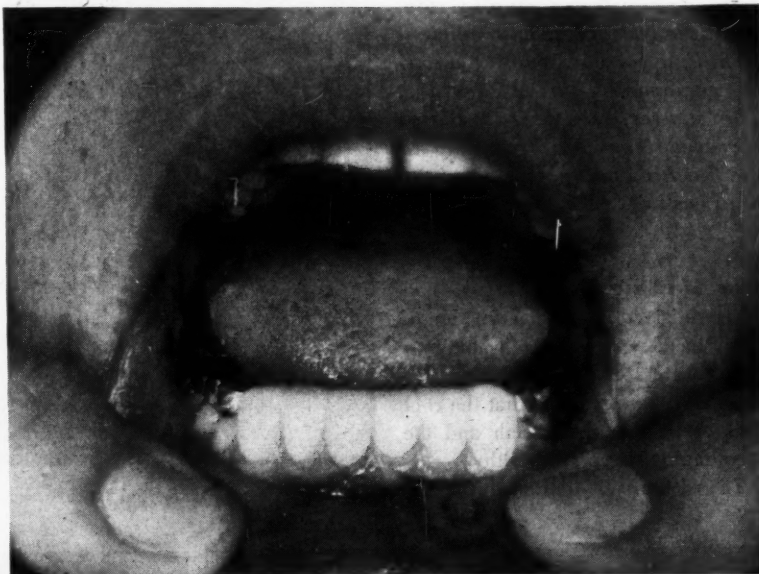


objections it was decided to construct a partial lower denture with the posterior onlays, clasps and anterior retention loops and buttons cast in a chrome-cobalt alloy. Full acrylic jacket crowns or overlays were made to fit over the lower six anterior teeth. These acrylic jackets were made in one continuous piece and cured to the retention loops of the casting (Fig. 3).

There was no preparation of the natural teeth. The amount of bite opening was previously determined with trial wax and acrylic splints.

The denture opened the bite sufficiently (Figs. 4 and 5), to allow normal appearing anterior teeth. It has been worn in comfort without any ill effects in the temporomandibular

6. Right: View of appliance in place showing the continuous acrylic jackets and their adaptation to the gingiva.



joint. The patient was instructed in proper gum massage and the gingival tissue has remained firm and healthy.

This prosthesis has answered the problem for this particular patient. His facial vertical dimension has been restored; he has avoided extractions; and after several months he continues to be happy with the esthetic value and the comfort of the appliance.

306 Brisbane Building

5. Right: Posterior view with the appliance in place indicating the distance that the bite was opened (4 mm.).



Planning and Designing

PARTIAL DENTURES

(Fourth Installment)

ARTHUR H. SCHMIDT, D.D.S.
Lincoln, Nebraska

DIGEST

This group of 25 pictures, the final installment in a series of four, demonstrates, step by step, a simple, accurate, and efficient technique for constructing a lower removable partial denture. The master model is herewith surveyed from the beginning to the finishing and polishing of the final casting.

The Abutment Tooth

To be satisfactory, the construction of an all metal-porcelain removable partial denture for a lower double free end saddle case requires that the root ends of the abutment teeth and the surrounding tissue are healthy.

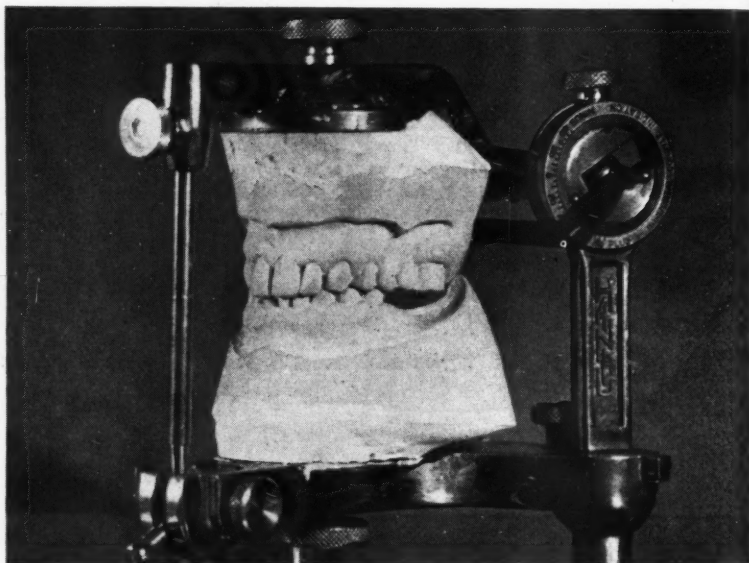
The denture is designed on the

indirect retention, utilizing all the teeth possible.

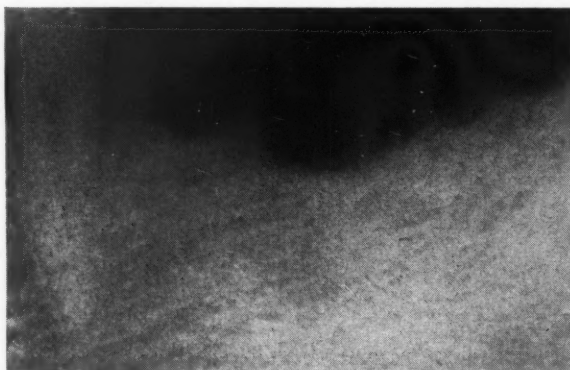
The Impression

Hydrocolloid impression material is preferred for making an impression of the master model. The pre-

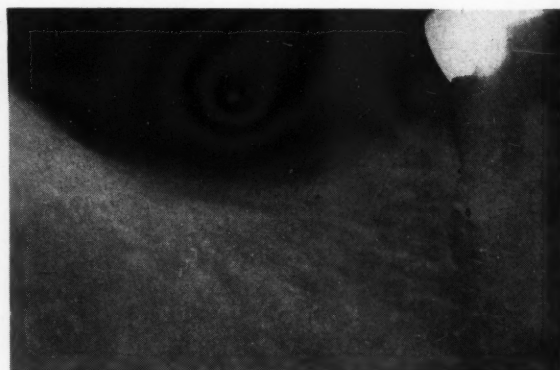
master model using reverse back-action clasps. A large back-action wax form is used for the bicuspid abutment. The splint bar is indicated for



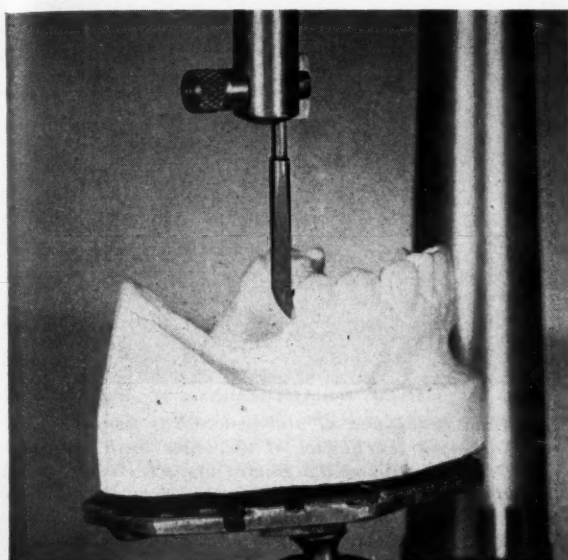
50. The Master model.



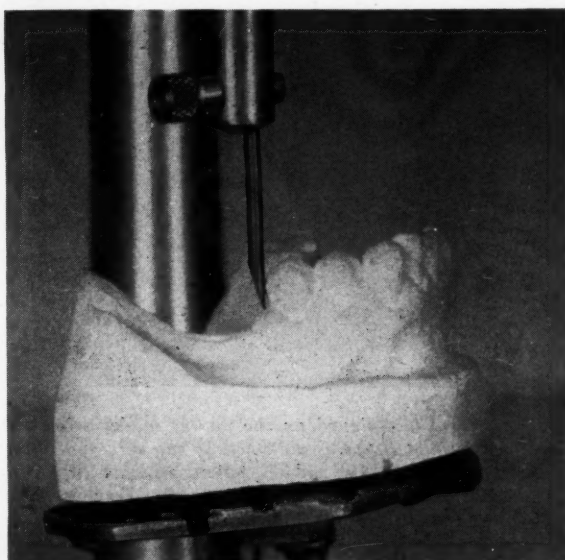
51. This is the right abutment tooth with an occlusal restoration. Note the dense cortical bone and the normal condition of the periodontal tissues. It is not sufficient to know that a tooth is strong or that it gives no discomfort. It must also be ascertained whether the root end is healthy or necrosed, and whether or not the periapical tissue is involved.



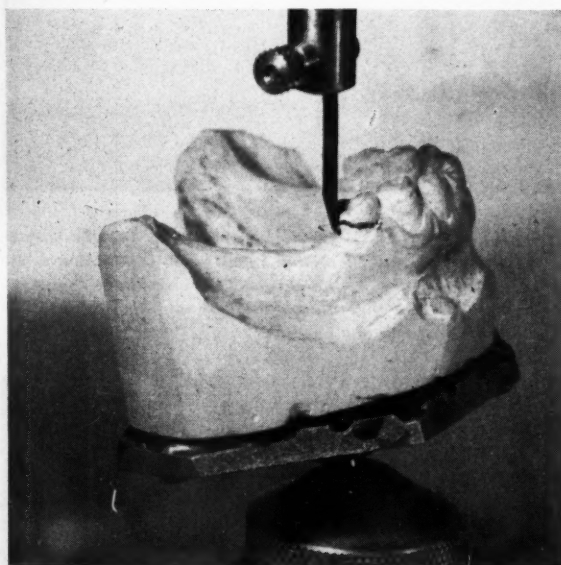
52. This is the abutment tooth on the left side. It has a large disto-occlusal gold inlay restoring the lingual cusp. The tooth and all surrounding structures are in healthy condition. It is to be noted that these two teeth have functioned as abutment teeth for the last eighteen years. During that time four different satisfactory partial dentures were constructed.



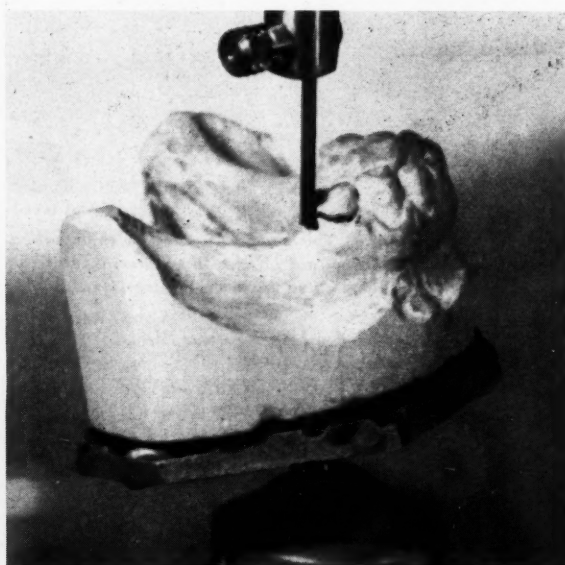
53. The stone model after correct tooth preparation is mounted on the surveyor table and placed on the surveyor with the correct tilt, showing the analyzing rod or mandrel contacting the distal of the bicuspid; the path of insertion is also indicated.



54. This shows the carbon marker securely held by the tool holder on the end of the spindle in the same position as the mandrel. The marking edges of the carbon marker and the analyzing mandrel are parallel to each other and to the spindle which is always vertical to the horizontal surveyor floor.



55. The carbon marker held in the same position as the mandrel indicates the surveyed line which is high on the saddle side and low on the opposite side, indicating a # 2 line.



56. In designing the reverse back-action clasp, the .010 gauge is mounted in the tool holder of the surveyor; the amount of horizontal undercut is determined on the distal and also on the mesiolingual end of the clasp.

pared model is duplicated in casting investment. Wax ledges previously prepared on the master model, reproduced on the investment case, indicate clearly the position of the clasps.

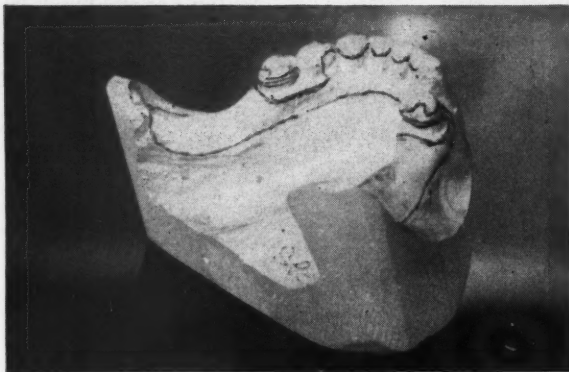
The Casting

To avoid a drop in temperature and subsequent shrinkage of the mold, the casting should be made as soon as possible after the flask is removed from the furnace. Slow even cooling

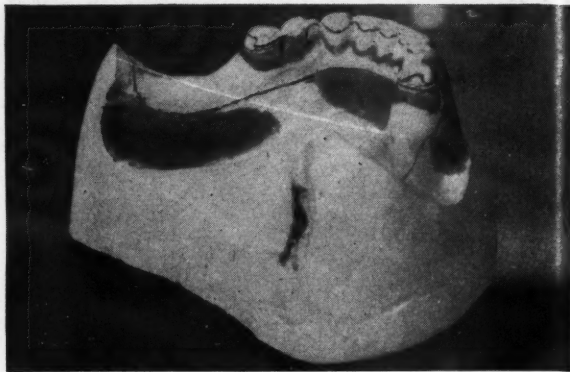
of the casting is an excellent hardening treatment. Finishing eliminates roughness and produces a smooth, high polish.

The University of Nebraska College of Dentistry

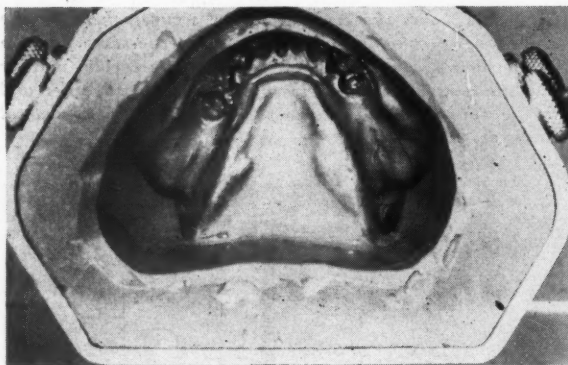
(Illustrations 57-74 appear on following three pages)



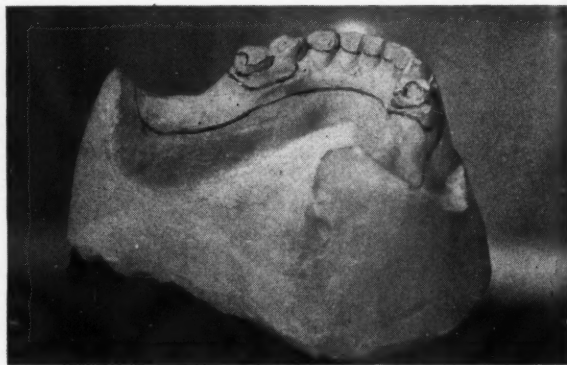
57. The case is designed on the master model using reverse back-action clasps as indicated by the surveyed lines. Draw the outline of the saddles, splint bar, and clasps in accordance with landmarks obtained in surveying. The splint bar is indicated for indirect retention, utilizing all the teeth possible.



58. High fusing wax or undercut wax is flowed around the gingiva on the lingual of the lower teeth for relief under the bar, around the gingiva of each clasped tooth, into the interproximal undercuts, and extended slightly below the lower outline of the clasp design.



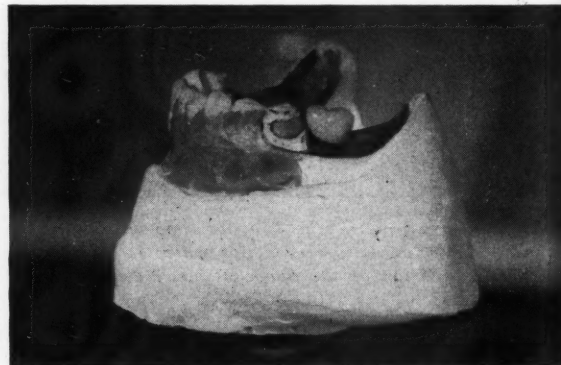
59. An impression of the master model is then taken preferably using hydrocolloid impression material, and the prepared model is duplicated in casting investment.



60. The wax ledges previously prepared on the master model are reproduced on the investment cast and indicate clearly the position of the clasps. This eliminates the necessity of mounting the investment cast on the surveyor and redesigning the case.



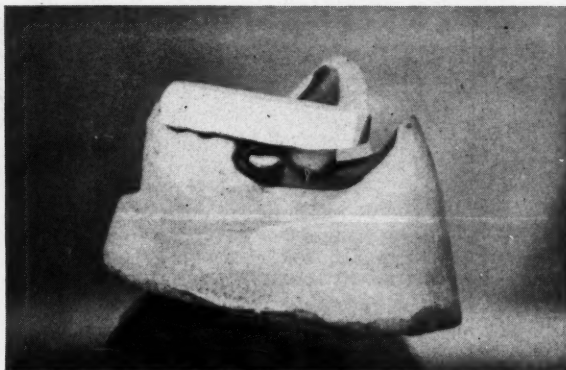
61. A large back-action wax form shown at the base of the cast was used for the bicuspid abutment. Adaptation is started at the mesiobuccal, bending it over into its seal. The occlusal rest is built up and attached with wax and spatula. The connecting arm is made of half of a large #1 wax form curved to the proper shape.



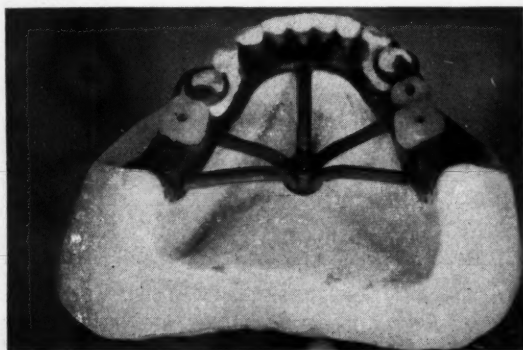
62. Grind the tube teeth to fit the master model. Place two thicknesses of 30-gauge wax over the saddle area and carefully grind each tooth to fit the ridge and undercut waxing. Check for occlusion and articulate the case.



63. After the tube teeth are ground, lubricate the occlusal surface of the adjacent teeth and pour a plaster core over the top of all teeth involved, forming a matrix that will make it possible later on to position the tube teeth correctly on the investment cast.



64. The prepared boxed tooth is reseated on the occlusal core and carried to place on the investment cast. It serves as a definite guide in placing the porcelain tooth in its properly articulated position.



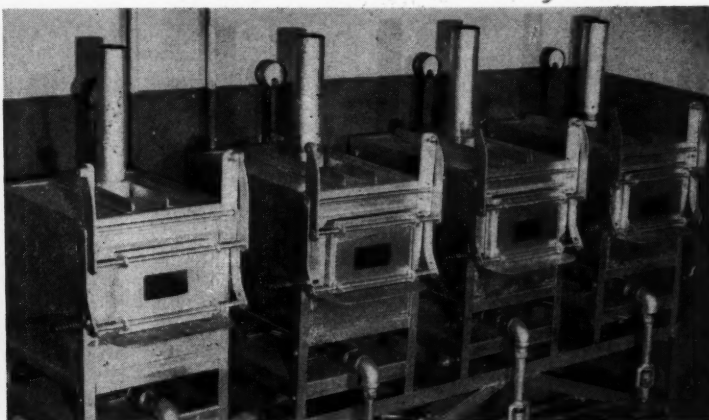
65. The lingual bar is made up of two half bar forms with two thicknesses of 30-gauge wax extended upon the lingual surfaces of the anterior teeth. Five sprues of 8-gauge round wax are attached to the master sprue in this upside-down method of sprueing.



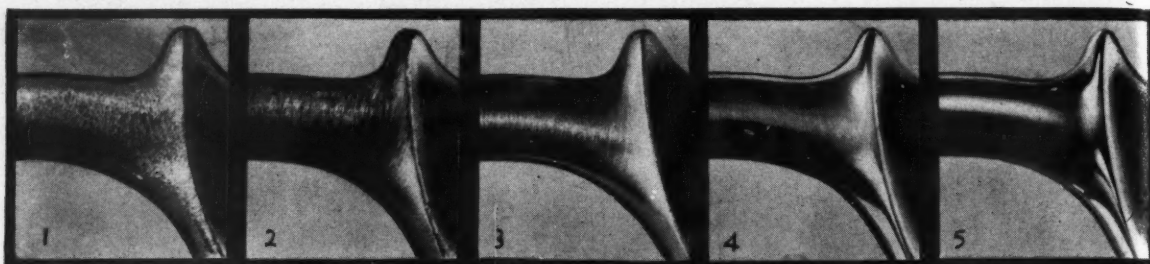
66. If the investment has been allowed to air-dry, it should be thoroughly soaked in water before completing the investing. The cast is inserted in the ring or flask so that the painted pattern is $\frac{1}{4}$ inch to $\frac{3}{8}$ inch above the bottom of the flask.



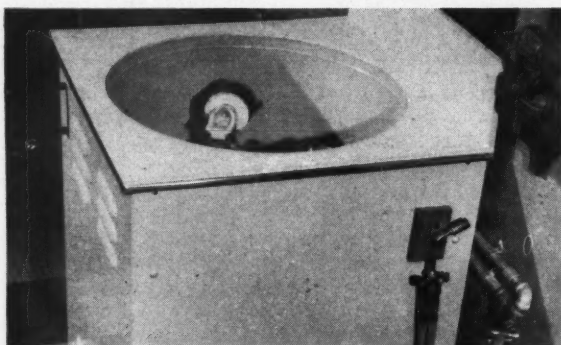
67. After the investment in the ring has set, trim to form the sprue opening indicated for the casting machine. Check the ring on the machine for correct position and balance, then flush the ring with running water to wash out all loose particles of investment.



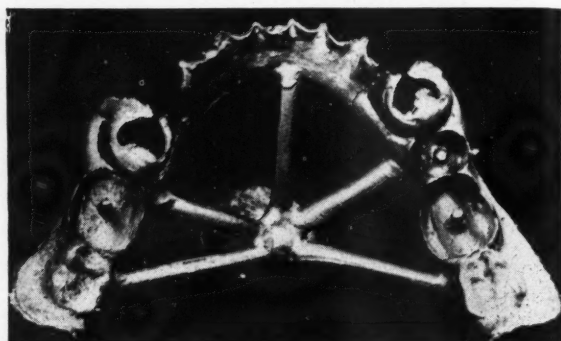
68. A convenient and efficient method of burnout is to increase the heat gradually over a period of one hour until the sprue hole is dull red and then continue heating at dull red for at least one-half hour more. Dull red heat is between 1300° to 1400° F.



71. From left to right are shown the surfaces produced by 5 stages of grinding: 1. Heatless stone. 2. Carborundum disc. 3. Rubber wheel. 4. Tripoli. 5. Rouge. In finishing, each successive step should be done with progressively finer grits in order to eliminate gradually the deep scratches and produce a smooth high polish.



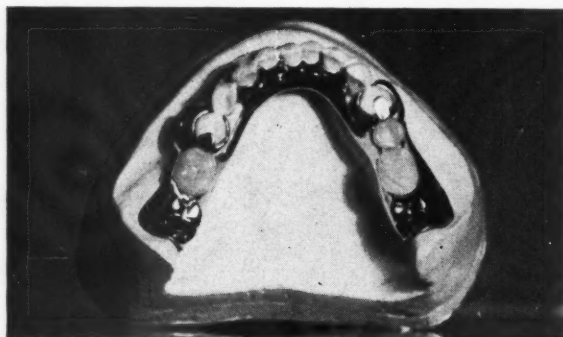
69. The casting should be made as soon as possible after the flask is removed from the furnace to avoid a drop in temperature and subsequent shrinkage of the mold. The gold should be preheated in the fire clay crucible before the ring is placed in the casting machine.



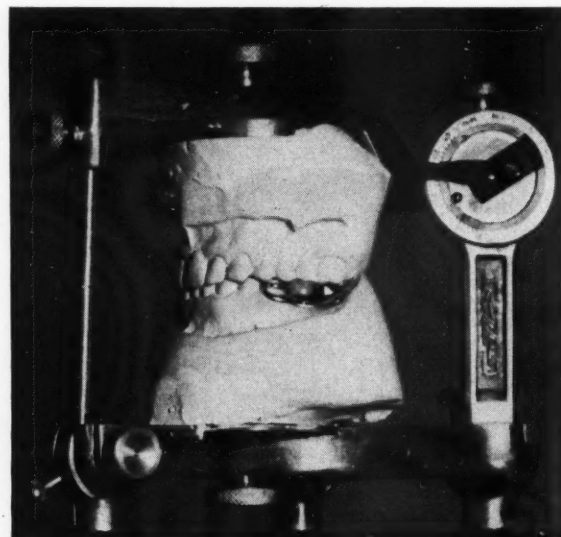
70. It should be remembered that the length of time the casting is allowed to remain in the investment before plunging the flask in water is important. If it is allowed to cool for a sufficient length of time, the danger of warpage is eliminated and the slow even cooling in the investment is an excellent hardening heat treatment. Boil the casting in sulphuric acid pickle (50 per cent acid and 50 per cent water), and then remove the sprues.



72. Finished and polished, we have a beautiful denture, properly surveyed and engineered.



73. The clasps are correctly positioned to give maximum efficiency, the splint bar to give the required indirect retention and protection to the anterior teeth; and the case has a definite path of insertion.



74. Occlusion is carefully checked before inserting the denture in the mouth.

Rebasing the MAXILLARY DENTURE

IRVING R. HARDY, D.M.D., Boston

DIGEST

For one reason or another many dentures which were well adapted and comfortable when originally inserted lose their fit through changes in the supporting tissues and have to be refitted. This is especially true of dentures inserted immediately after the extraction of natural teeth; these invariably need refitting. But even dentures inserted after a considerable interval of time has elapsed after extraction often need refitting. This procedure is generally termed "rebasing."

Many dentists have had so little success with rebasing that they no longer attempt it. Instead they construct a new denture. Many of those reporting failure testify that when the denture is returned from the laboratory the bite has changed. The procedure described herein will eliminate that difficulty.

THE REBASING technique herein described will produce a denture that is not malposed after processing. If the denture was in correct occlusal adjustment originally and maladjustment has occurred because of loss of supporting tissue, this procedure will correct the errors and the rebased denture will need little or no occlusal adjustment.

Disadvantages of Mass Impression Inside the Denture—The reason for a forward movement of a denture rebased by a mass impression inside the denture is illustrated (Fig. 1). In

the upper drawing there is considerable loss of fit in the anterior region. Note the position of the incisal edge of the central incisor in relation to the perpendicular line.

Relation of the Denture to the Ridge—The lower drawing shows the relative position of the denture to the ridge where a mass of impression material has been placed. It is evident that the denture has been moved forward. This inaccuracy often passes unnoticed at the time the impression is taken. The patient is asked to close; the bite seems correct. The fault is hidden because the patient accommodates himself to the anterior displacement error at the time the impression

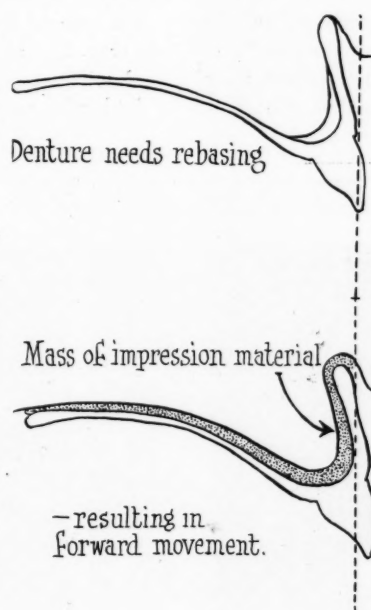
is taken. When the processed denture is inserted he seeks his centric position and the error is at once apparent. The laboratory is often accused of shifting the bite. Laboratories do make mistakes but it is not always the fault of the laboratory.

The Error of Overcompression—It may appear that the operator could have avoided this error by exerting sufficient force when seating the denture to force the labial flange back into place against the tissue before having the patient close against the denture. This would have resulted in a second difficulty—areas of overcompression.

Zinc Oxide Impression Pastes—These pastes are used regularly for full denture impressions, and with excellent results. But as Nagle¹ has suggested, if the tray perforates the paste at any point, unless adjustment is made, that point is an area of overcompression. In taking a paste wash in a denture it is almost impossible not to have the denture base penetrate the paste in large areas.

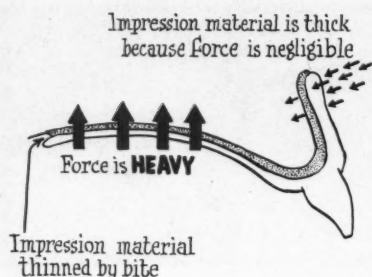
Drilling of Holes Not Advised—If a number of holes are drilled through the denture to allow for free escape of the impression material to permit accurate seating, it follows that large areas of the denture base will come in contact with the tissue. This results in an even more imperfect impression.

Sectional Impressions—By taking the impression in two sections these difficulties are overcome. Different impression materials are employed for each section. In the primary section Kerr's Iowa wax is the medium. This material, developed at the University of Iowa Dental School, has

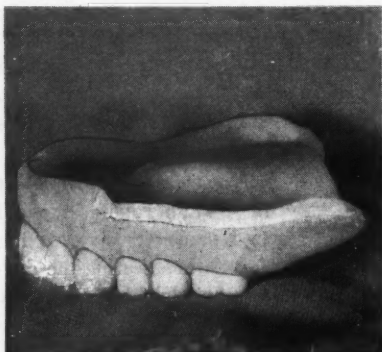


1. Denture rebased by a mass-impression-inside-the-denture method.

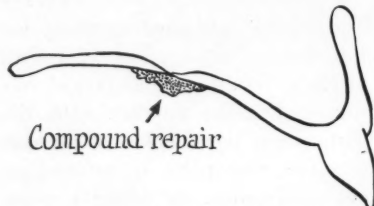
¹Nagle, R. J.: Report to Academy Denture Prosthetics St. Louis Meeting (unpublished).



2. Mass employment of Iowa wax is contraindicated.



3. The peripheral borders of the denture with the exception of the distal-palatal border, are reduced by grinding.



6. If the denture should be perforated in grinding, patch with modeling compound applied to the sub-palatal surface.

7. Wax and heating outfit with brush.

been described by Dirksen.² An attempt to use it in a mass instead of in a sectional technique will result in a malposition of the denture. Don't try it!

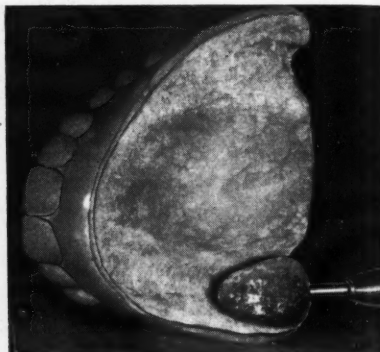
Mass Employment of Iowa Wax Contraindicated—The use of Iowa wax in a mass will give a good impression, free of the overcompressed places which a mass paste impression will show. But the denture will be moved forward (Fig. 2).



4. Undercuts are eliminated by grinding away overhang.

over-extended. The wax impression material does not support itself well beyond a 3-millimeter buildup.

2. Undercuts—All undercuts are eliminated by grinding away overhang (Fig. 4). At least 1 to 1½ millimeters are removed from the entire inner surface of the denture (Fig. 5). If in grinding, the denture should be perforated at any point (Fig. 6), patch with modelling compound applied to the subpalatal surface of the



5. Overhang is ground away from the entire inner surface of the dentures.

Sectional Impression Rebase Technique

1. The peripheral borders of the denture (with the exception of the distal-palatal border), are reduced 2 millimeters by grinding (Fig. 3). Do not reduce more than 2 millimeters unless some points in the border are

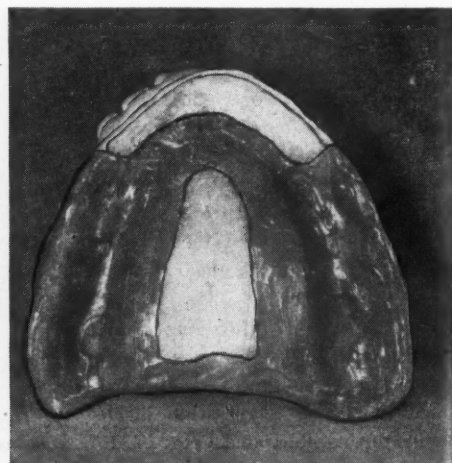
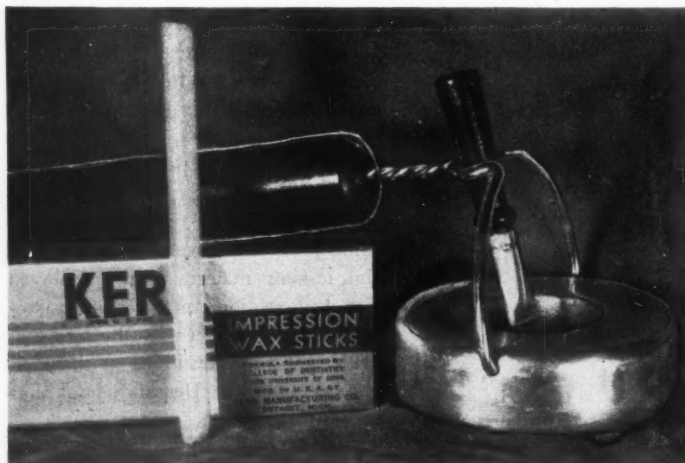
denture.

3. **Trimming**—This will take ten minutes. It can be done by your laboratory assistant or office assistant. But it should not be done at the chair.

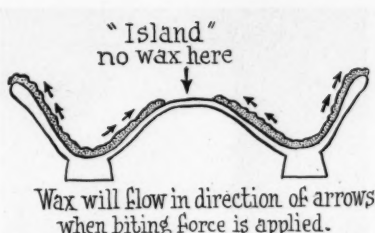
4. **Wax, Heating Outfit, and Brush**—The wax is melted by placing a

²Dirksen, Lynn D.: Composition and Properties of a Wax for Lower Impressions, J.A.D.A. 26:270-274 (February) 1939.

8. The wax is painted over the dry surface of the denture to a depth of a millimeter or more.



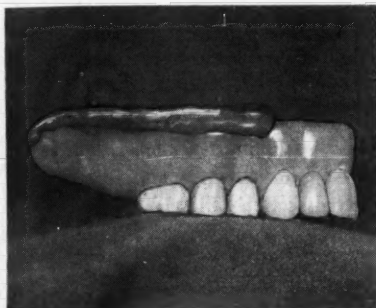
quantity of broken-up sticks in the well of the metal container (Fig. 7). Hold the metal pan over a Bunsen flame. As soon as the wax starts to melt, remove from the flame. When overheated it is difficult to pile the wax up on the peripheral borders; the wax also tends to break down when overheated. It can be heated in a double boiler but the water should



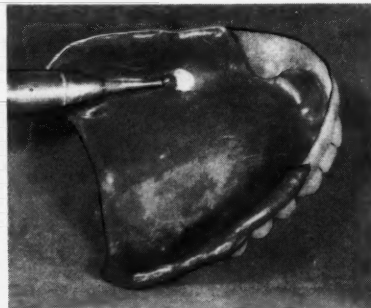
9. Leave an island in the center of the vault.

9. *Insufficient Wax*—In other places there may be an insufficient amount of wax. These are readily identified because, unlike the areas which have been in proper contact with the tissue, they do not present a shiny surface. Paint on enough wax to raise them to the level of the surrounding wax surfaces.

10. *Surplus Wax*—Some wax may



10. The wax is built up on the buccal margins.



11. Overcompression is relieved by cutting with a large round bur.



12. Surplus wax must be trimmed away.

not be allowed to boil; that temperature is too high for the best working qualities of the wax.

5. *Several Coats of Wax*—The wax is painted over the dry surface of the denture to a depth of a millimeter or more (Fig. 8). Paint on a coat, let it cool slightly, continue to add coats until the desired depth is built up. Apply over the ridges, the buccal flanges, over the postdam area, and over the buccal periphery. Do not apply wax on the inside of the labial flange. Leave an "island" in the center of the vault to allow flowage room and to avoid tissue displacement, or tissue compression (Fig. 9). The impression material can flow in either direction from the ridge crests when biting force is applied to the denture.

6. *The Buccal Margins*—The wax is built up on the buccal margins 3 millimeters (Fig. 10), and is carried forward only as far as the cuspid region. All margins are carefully sealed down to the denture with a hot spatula to prevent saliva working in between the wax and the denture base.

7. *The Denture is Inserted*—The patient is instructed to apply light intermittent vertical pressure by biting.

After 3 to 5 minutes the denture is carefully removed, washed, dried with air, and the surface is examined. The wax will be smooth and shiny where it has been molded against the tissue and will have flowed into the "island." It may even have obliterated this area previously left uncovered.

8. *Perforations*—In some areas the denture base may have perforated the wax (Fig. 11). If so the tissue is being overcompressed in this area. To secure relief, cut the denture base away where it is visible with a large round bur, clear away the debris, and paint a little wax over the burred-out area.



13. The wax is correctly muscle trimmed along the buccal periphery.

creep forward onto the labial plate of the denture (Fig. 12). This must be trimmed away. If not removed it will push the denture forward. With a spatula make a cut in the wax at the crest of the anterior ridge and remove the wax which has flowed forward.

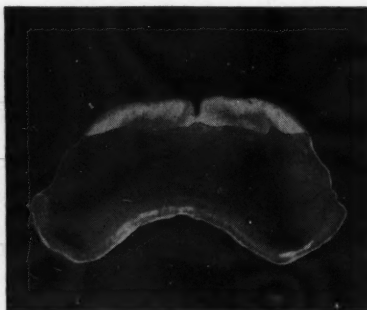
11. *Reseat the Denture*—Again the patient is instructed to apply light, vertical, intermittent biting pressure. Too heavy a bit may cause the wax to be forced almost entirely out of the ridge areas, and the impression would then be open to the same criticism made of the technique using paste; it would exhibit marked areas



14. The labial section of the denture is cut away with a fissure bur.



15. The truplastic has muscle trimmed itself.



16. The junction of the truplastic and wax impressions is smooth.



17. After painting the truplastic portion of the impression with separating medium the cast is poured.

of overcompression. Persons with strong masticatory musculature must be cautioned against exerting anything like their full biting force. If the process is too fatiguing for the elderly patient, hot water held in the mouth while biting will hasten the flow.

12. Good Retention—After 2 to 3 minutes the denture is again carefully removed and if no further discrepancies in the wax are noted the primary impression is now complete. Figure 13 illustrates how successfully the wax is muscle trimmed along the buccal periphery.

Despite the fact that there is no impression material anywhere on the labial portion of the denture, it will now have good retention. The denture has not moved forward; there has been no impression material behind the labial flange to push it forward.

13. Wax Impression Should Not be Disturbed—With a fissure bur cut away the labial section of the denture

(Fig. 14). If the wax is distorted, either by pressure of the fingers when cutting out the labial section, or by the heat of the bur, the error will be corrected automatically in the next step. Clear away debris, replace the denture in the mouth and instruct the patient to hold it in place with a gentle biting pressure.

14. The Labial Impression—(a) Put 5 cubic centimeters of water in a plaster bowl and mix into it a sufficient quantity of truplastic to make a mix nearly as heavy as putty. (b) With the patient holding a light centric pressure on the denture retract the lip with a mouth mirror. (c) Using a spatula, place the plastic material under the lip as high as the labial fold. Also cover the incisor and cuspid teeth. (d) Remove the mirror retractor and gently mold the lips down over the plastic material. (e) Leave in place 5 minutes. Then have the patient hold cold water in the mouth, retract the lips and cheeks and

remove the impression. (f) The result is an excellently muscle trimmed labial section (Fig. 15).

15. Junction of Plastic and Wax Impressions (Fig. 16)—If a slight discrepancy occurs where the two ingredients join it can be corrected by carefully flowing a little wax into the area or by judiciously trimming the cast after separating it from the impression.

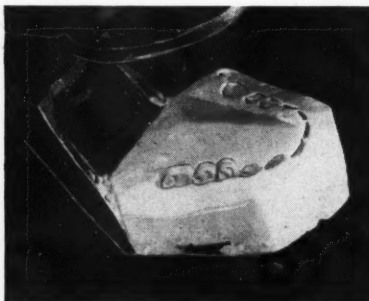
16. Pouring the Cast—The truplastic portion of the impression is painted with separating fluid and the cast is poured (Fig. 17). If the heat of the setting stone threatens to distort the wax impression, put the poured-up cast and impression in cold water as soon as the stone stiffens. After the cast is hard, trim away the truplastic which has flowed down over the anterior teeth to free the incisal edges for the next step.

17. Keying the Denture—To preserve the relationship of the denture to the cast (Fig. 18), during labora-

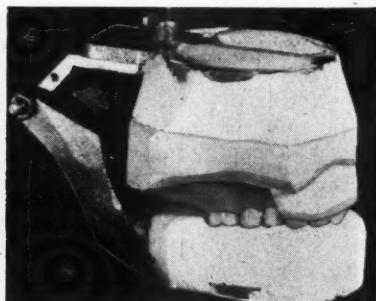
18. A plane line "foolproof" articulator is used to preserve the relationship of the denture to the case.



19. A plaster key is poured on the lower bow of the articulator.



20. The setscrew and the lockbolt must be carefully adjusted to maintain proper relationship.

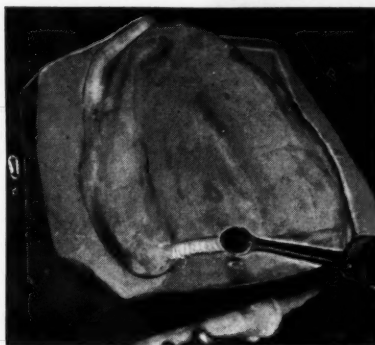


tory procedures, use either a plane line "foolproof" articulator (not an ordinary plane line); or a Hooper³ duplicator.

18. *The Plaster Key*—This engages the occlusal and incisal surfaces of the teeth (Fig. 19), and is poured on the lower bow of the articulator. The plaster key is not deep. The teeth are barely seated into it.

19. *Setscrew*—The denture and cast are plastered to the upper bow of the articulator (Fig. 20). Care is taken to see the setscrew on the back of the articulator is set just to contact; and that the locknut which controls the setscrew is tightly adjusted to maintain correct relationship and to prevent opening or closing the bite.

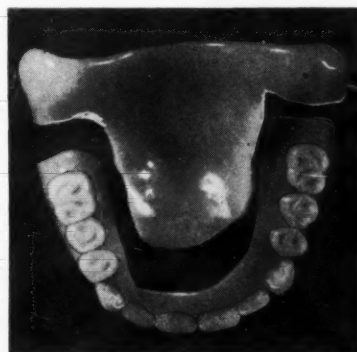
20. *The Denture is Separated From the Cast*—This wax impression does not provide an automatic postdam; the cast is therefore scraped to accomplish this step (Fig. 21). If relief for the torus palatinus and incisive pad is indicated as it was in the case under study (Fig. 22), relief chamber metal is adapted to the cast.



21. The cast is scraped to provide a postdam.



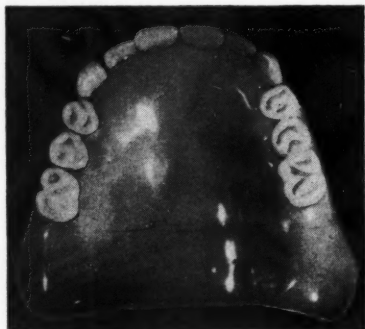
22. Chamber metal is adapted to the cast to provide relief for the torus palatinus and incisive pad.



23. The palate is cut out of the denture and the periphery lowered by grinding.



24. A new palate is waxed in and new wax peripheral borders are formed.



25. The rebased denture is ready for insertion.

³Hooper, Bert L.: Rebasings or Duplication Dentures: a Method of Restoring Facial Contour and Correcting Faulty Retention, DENTAL DIGEST 38:206 (June) 1932.

Final Steps

21. *A New Palate is Waxed In*—(a) After the palate is cut out of the denture (Fig. 23), and the periphery lowered by grinding, a new palate is waxed in and new peripheral borders are formed (Fig. 24). (b) The correct opening is preserved by continued seating of the teeth into the plaster key on the lower bow of the articulator. (c) When waxing is completed the case is carried through the processing and finishing stages.

22. *Denture Base Materials are Matched*.—To avoid a too obvious line of definition between old and new denture base material, the same type of material used for the original is used for the rebase. The rebased denture (Fig. 25), is now ready for insertion.

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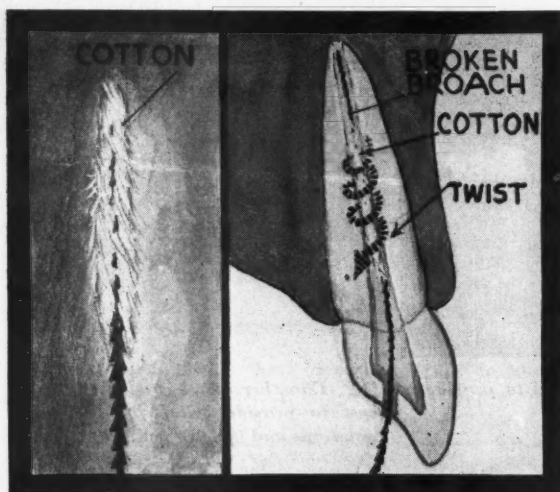
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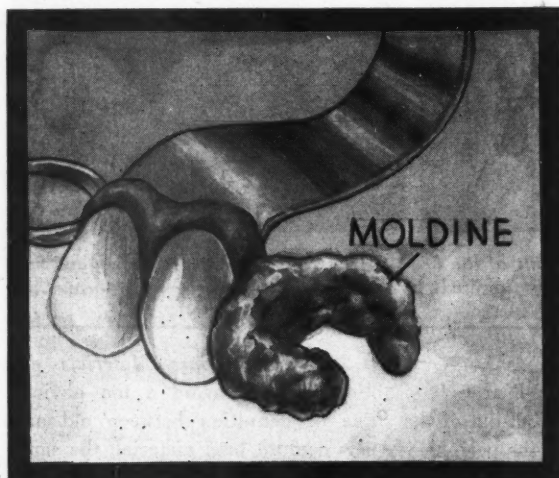
1

Clinical and Laboratory

Recovery of a Broken Barbed Broach

George S. Carreiro, D.D.S., San Francisco

1. Loosely engage a small amount of cotton on a fine barbed broach. Insert into the root canal to the depth of the broken broach. Twist one and one-half turns. The broken piece will be bound to the cotton and easily removed.

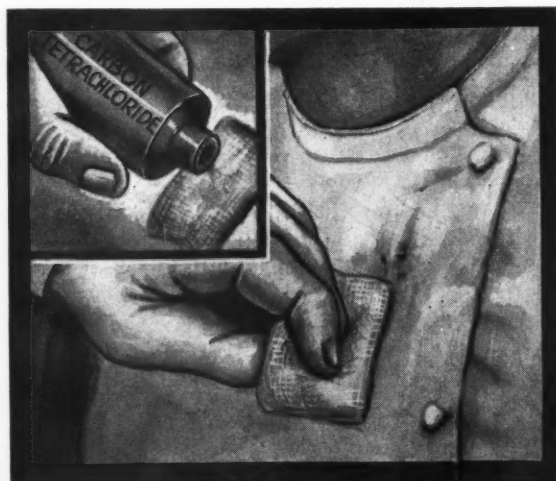


2

Protection of Clasp Against Distortion

R. B. Thomas, Jr., D.D.S., Washington, D.C.

2. Prior to investing a partial denture for repair, cover the clasps with moldine. After processing, the clasps separate from the investment without danger of distortion.



3

Removal of Wax From Garments

F. L. Patterson, D.D.S., Seattle

3. Overheated wax accidentally dropped on the garments of the patient or the dentist may be easily removed by rubbing with a towel upon which a few drops of carbon tetrachloride have been applied.

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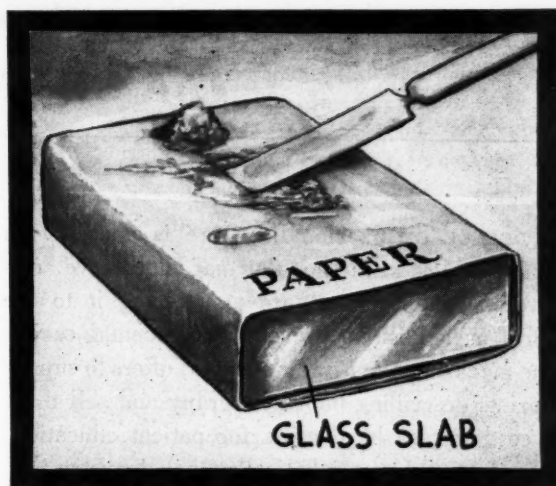
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make

ton **SUGGESTIONS . . .**

Mixing Impression Paste

Francis Sugiyama, D.D.S., Hawi, Hawaii

4. Wrap a thick glass slab snugly with ordinary typing paper and mix the zinc oxide-eugenol or similar impression paste on the paper.



4

A Convenient Carrier for Small Inlays

Henry L. Boris, D.D.S., Chicago

5. The small inlay is attached with modeling compound to a suitable instrument and carried to place for cementation.

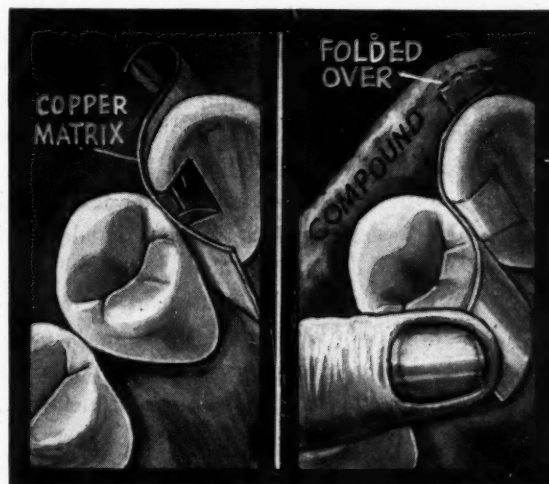


5

An Amalgam Matrix for Upper Cuspids

W. J. McColeman, D.D.S., Toronto

6. Occasionally an amalgam restoration is indicated on the distal of an upper cuspid. A suitable matrix is cut and contoured and held in position on the labial by inserting the folded end of the matrix in modeling compound. The amalgam is packed from the lingual.



6

suitable illustrations; write a brief description of the technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

Turn to page 38 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

The EDITOR'S Page

A DELUGE OF fluorine literature is flooding the country. Most of the popular magazines have "discovered" fluorine and are announcing it to the world as a positive preventive for dental caries. One magazine, the *Reader's Digest*, offers to supply reprints describing fluorine therapy and sell them at cost for use by dentists for patient education. We might add, parenthetically, that dentistry will have reached a low estate when we must depend upon magazines of general circulation for our education in scientific methods.

Life, in its usual zeal for oversimplification, has shown three pictures of children undergoing sodium fluoride treatment. *Life* announced the "treatment which prevents decay." The fact that the topical application of 2 per cent fluorine *reduces* caries rather than *prevents* the disease and that this reduction, even under the most enthusiastic boast, amounts to 40 per cent is not restrictive to *Life's* enthusiasm.

Then, to turn to the U. S. Public Health Service, we find a pamphlet "New Discovery Curbs Tooth Decay." This booklet is also for public distribution and is well supplied with such phrases as: "For every child nearly doubled resistance to dental decay is the new gift science now brings to children. For the first time in history, it is possible to prevent teeth from decaying. Out of every 10 teeth that might otherwise decay at least four can be saved by a new treatment which has been hailed by experts as the greatest dental discovery of the century!" We are also informed by this publication of the U. S. government that sodium fluoride is "the miracle substance," and the "magic liquid." It is neither. And the public should not get their hopes roused to the place where they think that the days of dental caries and dental treatment are over.

A restrained and sensible statement on the efficacy and limitation of sodium fluoride was prepared and adopted unanimously by the Seminar of Dental Medicine held at Palm Springs, California, on October 21, 1948. It is as follows:

"This is a word of caution as to the possibility

of preventing tooth decay by the use of fluorides.

"Recent studies indicate dental decay may be reduced through the application of sodium fluoride to the teeth of some children. Fluoride treatment must be considered in the process of investigation and is to be used only as an adjunct along with all other accepted procedures such as oral hygiene, a proper nutritional program and regular care by a dentist. Because it is in the experimental stage a false sense of security should be avoided. Treatment should be under the supervision of dentists wherein they can observe the value of the treatment to each individual case and not allow damage to result where the fluoride is not effective. Present evidence has shown that the application of fluoride will not be effective on cavities once they have begun. Stress must be placed on the patient's responsibility and cooperation by reducing refined carbohydrate consumption and by proper home care.

"Further research remains to reveal the utmost potentialities of fluorides in health."

The dental profession is responsible to protect the public from extravagant claims made for all types of dental therapeutic agents. The public looks to us to be the proper judges of claims made for the prevention and treatment of dental disease. In the face of the deluge of articles and pictures poured out by the big circulation magazines it is satisfying to see that the public is more ready to accept our evaluation of sodium fluoride than the statements that have appeared in print. The public faith is something that we cannot afford to lose. It is our responsibility to counteract the unsound statements and the happy but unsubstantiated promises that have been made regarding fluorine therapy. Any agent that at the best reduces disease by forty per cent cannot be classed as a preventive. It is an adjunct, a supplement, a supportive agent—it is not a specific. So far as sodium fluoride is concerned, this distinction must be made to the public, and the dental profession is probably the only agency that will make the explanation.



Finger Capillaries in Psychoses

An important conclusion was reached at the Bosworth Hospital in Brookline, Massachusetts from the examinations of 75 patients. The finger nails of 35 out of 49 undoubted schizophrenics had immature capillary formations and 28 of 36 manic depressives had twisted capillaries.

It seems, therefore, that capillary loops in the fingertips of patients with schizophrenia and manic depressive psychoses usually are abnormal. The capillaries indicate the nature of a psychosis more definitely than the first clinical diagnosis.

The studies were made with a standard microscope. The finger was steadied and the skin covered with cedar oil for greater transparency. An arc lamp with green filter was used for photography. The nailfolds on the fourth and fifth fingers of both hands were studied. The fourth finger was the best test object.

Development of capillaries starts at birth with a primitive network of vessels, continuous with the arterioles and venules of the deeper layers. No true capillary loops are seen. The upper end of the corium represents a flat line.

After a month, saddle-shaped forms sprout from the subcapillary plexus. In the fifth month, hairpin-like capillaries, each in one of the corium papillae, appear. From the fifth or six month to one year of age, definite capillary loops are formed and the horizontal network of blood vessels disappears. Thereafter the capillary pattern remains unchanged, as irrevocably fixed as the fingerprints.

With schizophrenia, the horizontal network of blood vessels seen in the newborn persists or other signs of capillary immaturity are apparent. The pattern is not altered by the evolution of the psychosis, by remissions, or by electric shock treatment. The vascular condition reflects the immaturity of many schizophrenics. When patients have mainly hallucinatory symptoms, capillaries show a mixture of patterns.

M E D I C I N E

and the Biologic Sciences



The factor is important in differential diagnosis and as an aid in detecting and helping these persons early.

Hauptmann, Alfred, and Myerson, Abraham: *Finger Capillaries in Psychoses, Nerve and Mental Diseases* 108:91-108 (February) 1948.



Influence of Orange Juice on Tooth Enamel

The recent reports of the dissolution of dental substance by lemon juice brought to light an observation commonly noted by the dental profession. Frequently the fibers of crushed orange are found filling the interstices between the teeth. Caries is observed in relationship to these deposits. This is noted particularly in children with advancing caries.

In view of the common use of ascorbic acid for the administration of vitamin C, an investigation was undertaken to determine whether the acid character of the vitamin was responsible for the breakdown of the lime salts in the dental enamel. It is common knowledge that ascorbic acid

will rapidly dissolve calcium carbonate, producing calcium ascorbate. The rapidity with which ascorbic acid does this would appear to be far too rapid for an organic acid with a structure like sugar. Its capacity to attack calcium carbonate resembles that of a strong inorganic acid.

The capacity for ascorbic acid to make calcium salts soluble is not a haphazard one and underlies the fundamental mobilization of calcium in the body.

An effort was made to determine whether the sodium and calcium salts of ascorbic acid would be free from the enamel-attacking action.

Five groups of teeth were utilized: Group 1—Teeth with beginning cavitation were immersed for one week in a ten per cent solution of ascorbic acid. Virtually the whole enamel showed a thick layer of disintegrating substance. Where small cavitation existed, the area became greatly enlarged. Root areas were not attacked.

Group 2—Teeth with beginning cavitation were immersed for one week in a ten per cent solution of sodium ascorbate. There was no enamel disturbance nor did the cavitation show any increased size.

Group 3—Teeth with beginning cavitation were immersed for one week in a ten per cent solution of calcium ascorbate. There was no enamel disturbance, but a deposition of the calcium ascorbate on the surface of the whole tooth, covering the root as well as the crown. The area of cavitation also showed deposition of calcium around the edges and in the cavity, tending to fill the cavity itself. These deposits strongly resemble the so-called "tartar" of the teeth.

Group 4—Teeth with beginning cavitation were immersed for one week in fresh orange juice. There was little or no evidence of enamel dissolution over intact surfaces. However, where the cavitation occurred, a rim of enamel dissolution could be seen around the border of the cavity. It appears that exposed enamel where a carious invasion has occurred is particularly vulnerable to orange juice.

Group 5—The teeth were immersed

in water with no change occurring.

The effect of the orange juice on the teeth was far less destructive than that of ascorbic acid. When, however, these were compared with the effect of sodium ascorbate or calcium ascorbate, the difference was greater. The sodium ascorbate failed to show any evidence of attacking the enamel and the calcium ascorbate seemed to put down a layer of protective calcium. Where vitamin C is indicated, the sodium or calcium ascorbate could be used with greater safety than ascorbic acid.

It appears from these experiments that the normal drinking of orange juice does not influence the enamel of the teeth except where cavitation has already been produced. Under these circumstances it is important that all cavities be promptly filled, particularly in children.

Ruskin, Simon L.; Merrill, Alice T.; and Ruskin, Oscar: *The influence of Ascorbic Acid, Sodium Ascorbate, Calcium Ascorbate and Orange Juice on Dental Enamel*, *Am. J. of Digest. Dis.* 15:302-303 (September) 1948.



Hot Climate for Arthritis

A new concept of treatment for arthritis was recently reported. This is based on the realization that a hot dry climate is beneficial for rheumatic fever and rheumatoid arthritis. As peripheral blood vessels relax and circulation improves, joint pain, swelling and stiffness often disappear and streptococci usually vanish from the throat.

Special air-conditioned rooms in hospitals are constructed where the atmosphere is still. Temperature is constant at 89.0° F. and the humidity at 35 per cent. Patients are kept in these rooms for one hundred days. In spite of mitral valve deformities, persons with rheumatic fever often become entirely free of symptoms and are, at times, able to return to work. The results with rheumatoid arthritis may be equally good, but relapses are more frequent. No recurrence is noted

immediately after return to ordinary room temperature.

At a temperature of 68° F. and humidity of 50 to 60 per cent, rheumatic persons, especially those with rheumatoid arthritis, have pronounced vasospasm of the extremities. Distal skin temperature is less than for healthy persons and much lower than on the trunk. Hands and feet are livid blue in many patients.

In the hot atmosphere arterio-venous anastomoses dilate so widely that distal areas are warmer than central parts. The average temperature of the thumb increases about 9.2° F. and of the upper arm 4.0° F.

Vascular reflexes may be decreased or prevented. In good health, blood from the median cubital vein has an oxygen saturation of 68 to 70 per cent. Arthritis reduces the value to about 51 per cent. In hot air, oxygen saturation rises to 82 per cent and the color of the venous blood becomes a bright red as it does in tropical climates.

The throat flora include beta hemolytic streptococci in most rheumatic and rheumatoid cases. These organisms are almost invariably eliminated by the hot room, a phenomenon also observed in the tropics.

After a few days of treatment, particular edema and capsular swelling, shifting pain, and contractures decrease. Movement becomes easier. Heart action improves, probably because of lessened peripheral resistance. Cyanosis is no longer seen.

Heat therapy has no effect on normal cardiac output per minute; basal metabolic rate and hemoglobin remain unchanged.

Edstrom, Gunnar; Lundin, G.; and Wrammer, T.: *Hot Climate for Arthritis*, *Ann. Rheumat. Dis.* 7:76-82 (February) 1948.



Glossodynia— Etiology

Both the dentist and the physician are frequently faced with the problem of a burning sensation of the tongue. This may be a perplexing problem

as an examination may reveal nothing grossly visible. In the presence of newly placed prosthetic work glossodynia may be confusing to the dentist and annoying to the patient.

A dietary deficiency may not be evident and adequate vitamin therapy may be ineffective in treatment. A complete mental, physical, and laboratory evaluation of the patient may become necessary.

In avitaminosis, niacin and riboflavin are causes of burning sensations of the tongue. Because of restricted diets with consequent severe vitamin deficiencies, burning of the tongue may obviously be correlated with lack of vitamin B complex factors. Certain therapeutic diets as seen in diabetes and ulcers may result in such vitamin defects.

A deficiency may be the result of an excessive loss of vitamin despite a reasonably normal intake, as in rapid excretions associated with ulcerative colitis and other diarrheal diseases. In diabetes, an excessive fluid loss may be a potent contributing factor causing dryness of the mouth and lingual burning. The body is relatively deficient in thyrotoxicosis due to an increased utilization of vitamins.

Diseases in which poor absorption is present, as in sprue, may lead to deficiency. The liver stores most of the B complex vitamins and in conditions where liver damage is present, as in cirrhosis, deficiency may follow.

Burning of the tongue is also present in pernicious anemia, but other symptoms serve to delineate this condition. In the Plummer-Vinson syndrome, which is believed to be due to an iron deficiency, burning of the tongue may also be a leading symptom.

In searching for the cause, particular attention should be given to factors which may have some contributing influence. Smoking, irritating food and drink may affect the tongue. Smoking frequently causes the formation of a thick, tenacious salivary secretion.

Occasionally, electrogalvanic currents produced by dissimilar metallic dentures in a good electrolyte (saliva) may be the cause of burning tongue.

Local inflammation and irritation, visible or not, may cause symptoms. Local irritations may be produced by carious, irregular teeth and dentures.

There are cases where neurogenic and psychoneurotic causes are found. It has been pointed out that burning of the tongue may be the only symptom of thrombosis of a small intracranial vessel. Burning of the tongue may also be associated with the menopause.

There still exists a fairly large number of patients with burning of the tongue in which the cause is due to an insufficiency or thickness of salivary secretion. In this condition, dryness of the mouth is a concomitant symptom. Some of these patients have saliva that is so tenacious that when the mouth is opened, the saliva appears as thin strings stretching from the soft palate to the tongue. Some of these persons are heavy smokers and it is felt that smoking is a contributing factor here.

Parasympathetic stimulation will cause a flow of a voluminous amount of thin salivary secretion. Therefore it seems logical to use neostigmine. One half a tablet (7.5 mg.) of prostigmine bromide is given three times daily after meals; shortly afterward there occurs a copious thin salivary secretion. Within a few days, the burning of the tongue and dryness of the mouth are diminished or stopped entirely. A large intake of fluid is prescribed. If smoking is felt to be a factor in the cause of the condition it is forbidden.

This treatment appears to warrant attention, inasmuch as the writers believe that burning of the tongue and dryness of the mouth are frequently due to the presence of a thick, ropy, tenacious salivary secretion. The underlying cause is not always evident. However, the production of a thin watery salivary secretion results in a disappearance of the burning of the tongue and the dryness of the mouth. Other therapeutic measures are advisable according to the demands of the individual case.

Waldman, Samuel, and Perner, Louis:

Burning Sensation of the Tongue (Glossodynia) An Analysis of Cases that are not due to Vitamin B Deficiency, Gastroenterology 10:965-970 (June) 1948.



Sodium Restriction

"Nutritional restriction" of certain ingredients of the diet is just as necessary as "nutritional supplementation" of certain ingredients as a part of diet therapy.

The introduction of sodium restriction in patients with chronic cardiovascular disease is an important contribution to the management of this condition. Patients with impairment of heart function are unable to excrete sodium normally. The use of low sodium diets in the treatment of congestive failure is therefore mandatory.

Of equal importance is the anticipation of congestive failure by the physician and the institution of measures which will delay the catastrophe. Since, in most instances a complete cure of the underlying lesion cannot be accomplished, the management of congestive failure attempts amelioration of the symptoms in an effort to prolong the patient's comfort and usefulness.

The restriction of sodium in the diet may be conveniently considered at three levels: 1—On an unrestricted diet the average person will eat 3 to 5 grams of sodium daily. This intake can easily be reduced to 1.5 to 3 grams of sodium daily by two simple procedures, (a) the elimination of added salts at the table and (b) the avoidance of highly salted foods and salt preserved foods as ham, bacon, salted fish, anchovies, delicatessen meats, olives, salted nuts, potato chips, meat sauces and similar foods.

2—The second level of restriction involves the elimination of all salts in cooking and will reduce the sodium intake to 0.5 or 1.5 grams daily.

3—The third level of restriction involves a careful selection of foods which avoids sodium-rich materials, limits foods to which sodium is added during preparation, such as baked

products containing baking powder, and favors the use of unsalted bread and butter. This restriction should reduce the sodium intake to less than 0.5 grams per day.

In practice, patients with the earliest cardiac symptoms of failure are placed on the first level of restriction. When symptoms reappear the sodium may be decreased to the second level of less than 1.5 grams per day. Eventually it may be desirable to maintain the patient on the lowest sodium level that is feasible.

In this fashion the appearance of distressing symptoms and development of congestive failure can often be delayed many months. The ominous prognosis of patients with a history of congestive failure would suggest that by such a delay their lives will have been prolonged. There is no evidence that stringent limitations of salt intake will lead to hypochloremia or other serious consequences.

Stane, Frederick; Mann, George V.; and Caso, Elizabeth K.: *Nutrition in Protracted Disease*, M. Clin. North America 32:1159-1169 (September) 1948.



Surgical Management of Neoplasms of the Head and Neck

In recent years surgery has improved the prognosis of tumors of the face, lips, oral cavity and accessory sinuses, and primary and metastatic tumors in the neck. Many malignant tumors have until recently been totally inoperable because of location, as the pharynx and tonsils, and others because of the extent to which they have grown before the patients sought medical advice.

With x-ray and radium therapy some of these are palliated. A few survive the five year period with adequate irradiation. Other cancers of the face, lips, and anterior part of the tongue are frequently eradicated with little mutilation by radium or x-ray therapy.

Radiology does fall short, however, of the anticipated percentage of cures. Those tumors which are radioresistant

but shrink greatly with irradiation are often removed surgically. Other cancers require so much therapeutic irradiation that immediate or late sequelae develop such as radio-osteonecrosis, and sloughing of the scar in the mouth. This usually follows secondary infection such as sore throat or an infected tooth. Surgical removal, therefore, of the irradiated area or the necrotic bone becomes imperative sooner or later.

These surgical improvements fall into six important classes: 1—Preoperative irradiation of malignancies about the oral cavity and accessory sinuses makes it possible to eradicate the cancer completely if it is radio-sensitive, and avoid operation. If moderately radiosensitive, the growth will be greatly reduced in size and its vitality diminished, making removal easier and safer.

2—The use of pentothal sodium intravenously gives the surgeon freedom from annoying anesthetic apparatus about the head. Intratracheal anesthesia also gives the anesthetist an opportunity to control gases and air inhaled and exhaled.

3—Modern antibiotics have gone far in reducing the secondary infections which constitute the third phase of the problem. Postoperative infection in the operative field, chest, or blood stream can be almost completely eliminated.

4—Electrosurgery is being used to excellent advantage. Small operative spaces do not permit the application of a large number of hemostats. Electrosurgery is therefore of benefit in the fourth phase of the problem.

5—The problems of postoperative nutrition are being solved by a better understanding of nutritional needs of vitamins, minerals, and electrolytes, as well as proteins, fats, and carbohydrates. Adequate fluids and foods are given either through intranasal tube or by gastrostomy.

6—Marked advances in plastic surgery make it possible to remove extensive growths from the head and neck including portions of the jaws, with the expectation of restoring the patient to fairly normal function. These plastic procedures are some-

times performed at the time the neoplasm is removed.

Later, prosthesis can complete the work and enable the patient to resume a reasonably normal life.

Editorial: Modern Surgical Management of Neoplasms of the Head and Neck, Am. J. Surg. 74:349-351 (October) 1948.



Rheumatic Fever

Rheumatic fever should merit attention and concern as the disease attacks 1 to 4 per cent of the school population. This is an estimated 200,000 children between 5 and 19 years of age. The disease also affects 1 per cent of the wage earning population in this country.

An estimated 40,000 persons die each year from the disease. The average age at death is 30 years. Between 800,000 to 1,000,000 persons in this country have rheumatic fever or rheumatic heart disease. In most instances the diseases are contracted in early childhood.

Up to 40 years of age, rheumatic fever is the chief cause of cardiovascular disease. It is essentially a disease of childhood and appears as an initial infection when the child is about seven years of age and soon after the second dentition has begun to make its appearance. As adolescence is reached and primary infections become less frequent the high incidence rate of seven years falls.

The disease tends to recur. The recurrence rate is unpredictable and it is this polycyclic tendency which makes prognosis so difficult.

Few children who contract rheumatic fever escape without some damage to the heart. In the diagnosis of rheumatic fever one should differentiate between it and rheumatic heart disease. Many months may elapse following the initial infection before clinical evidence (by the ear) of carditis is discovered.

Early cases of rheumatic fever can be detected and screened in the school.

Teachers should be trained to be health conscious regarding their pupils.

The child who is below par, who tires easily, is losing weight, and exhibits general lassitude and pallor should be reported to the school doctor or nurse.

"Growing pains" are one of the most besetting problems for the physician. Not every child with "growing pains" has rheumatic fever although some of them do. These pains, usually in the legs and occurring at night, may be due to the process of growth combined with a fault in body mechanics. Many are due to weak and pronated feet with a resultant faulty posture. Other children suffer leg pains at night simply from over fatigue. In others a psychic element is present; the child complains to attract the attention of the parents. The differential diagnosis of "growing pains" may require time and observation.

In nearly every case of rheumatic fever the heart is involved to some degree. The amount of cardiac involvement is directly proportional to the number of recurrences and these in turn usually determine the life span of the individual.

Penicillin is now strongly advised for a patient who is known to have been rheumatic prior to operation on the oral cavity, tonsils, and the sinuses. The purpose of this is to prevent a possible subacute bacterial endocarditis.

There is no specific therapy. The drug of choice in the acute and subacute phases of rheumatic fever is salicylate. This should be given in the form of sodium salicylate or as aspirin or empirin.

Bed rest is still the treatment of choice for the child with acute or subacute rheumatic fever. This may have to be continued for a long period of time. It is difficult for the physician to decide when bed rest can be terminated and graduated activity begun.

Martin, Alexander T.: Present Day Concepts of Rheumatic Fever, Ohio State M. J. 44:265-268 (March) 1948.

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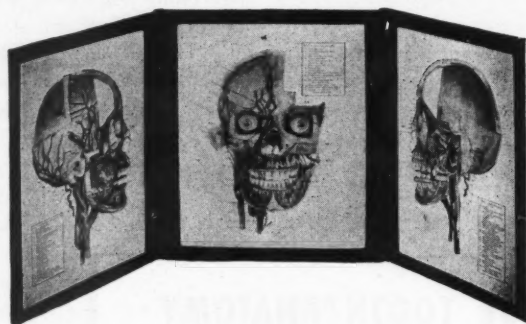
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Contra- Angles



Note to the Lovesick

A poor faltering soul, up to his dentures in love, has written a letter to one of the newspaper advisers to the lovesick. The fellow was a denture-wearer and asked if he should keep his secret from the woman he loves. He was advised not to, to be a man and come forward and admit his dental disgrace. "After all," said the sage advice giver, "maybe the girl isn't dental perfect herself."

The newspaper seer really missed the boat when she didn't enlarge on the fellow's apprehension over his dentures, using big long psychoanalytic terms. I have read some place that teeth are associated with virility and that dreams of teeth loss are hidden castration fears. Here's a poor guy, all twisted up in premarital knots because he wears dentures and nobody has dropped him even the hint that he really fears somewhere deep in his psyche a little bit of impotence.

This all goes to suggest that if people are fearful of entering matrimony because they wear dentures or toupees, or snore at night, or wear deceivers, it's time that some enterprising savant developed a premarital anatomic and physiologic inventory. Premarital physical examinations are pretty well accepted but they hardly go far enough. Looking for a few gonococci or spirochaeta doesn't complete the picture.

Think of the glamor girls with their secret scars, their hidden birthmarks, their sudden and unpredictable attacks of hiccups; and the men with their little pot bellies, kept under control with wide elastic bands, with their elevator shoes, and their beards that creep out in pepper and salt designs. What we want is a good scientific

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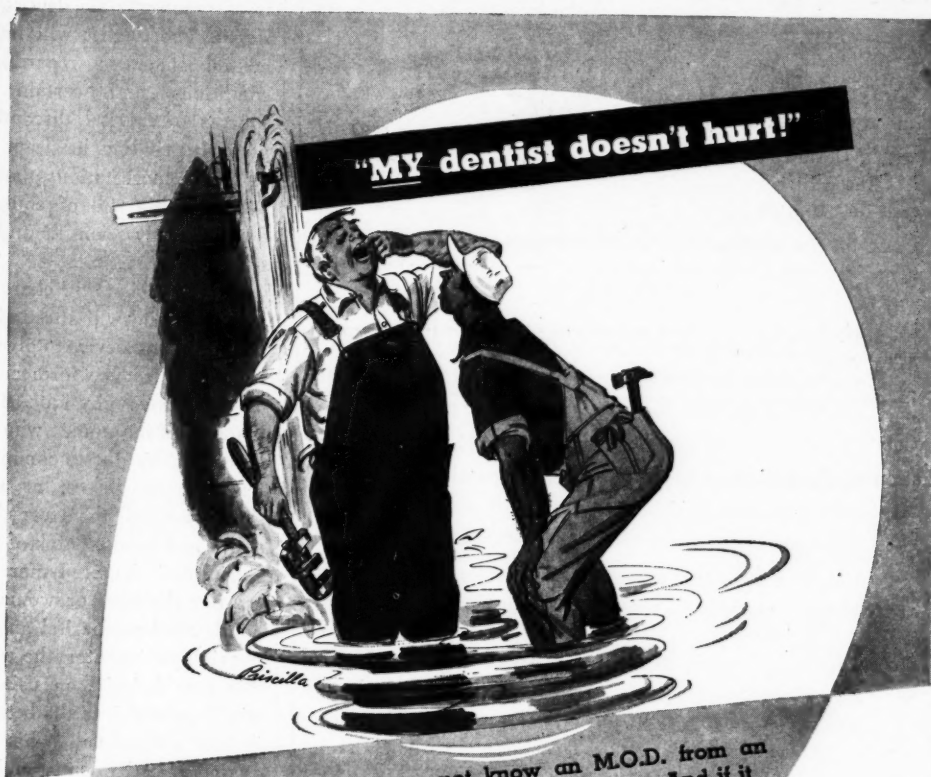
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(See pages 28 and 29)

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\$10 will be paid to author on publication of accepted suggestions.

premarital counselling, not the facts-of-life stuff, not that be patient—tolerant—understanding stuff, but a good scientific inventory.

To see how this is going to work, let's say that every betrothed man and woman consults his dentist and physician. The dentist will make a notarized statement regarding dental conditions and certain potential sources of marital discomfort, such as teeth grinding in sleep, a pattern of tongue incrustations, the breath index. All this will of course be put down in truly scientific and technical terms.

The physician will chart scars and blemishes and will attest with candor the use of any device to give form and contour or reduce form and contour of the human physique. Think particularly of the women who have been deceiving by these commonly used feminine prostheses, or maybe we should not call them prostheses, just straps and bands. Think of the broken spirits and shattered marriages.

After the man or woman receives his detailed premarital anatomic and physiologic inventory he will [and in this case I insist on using "or she will"] present it to the betrothed who in turn will take it to his [and once again "or her"] dentist and physician for interpretation.

This second interview gives us a chance to go to town and really do some counselling. If a young woman has an aversion to MOD inlays in upper second bicuspid this is the time for her to know about them rather than discover them herself some time when her husband is asleep and breathing through his mouth. And for the sensitive man who loathes a geographic tongue, particularly a white one, this information in advance of matrimony may save him untold hours of unhappiness.

All this comes into discussion because a 35 year old man asked if he should tell his prospective wife of his dentures. I object to the answer because it was too curt. It told him to confess but gave him no suggestion to do a little questioning himself. If a man is going to be straightforward and make a complete confession of his anatomic and physiologic peculi-

IN THE FREQUENTLY OVERLOOKED

Human Phase OF NUTRITION



HUMAN nutrition presents many phases not encountered in experimental studies. The laboratory animal, driven by hunger, will eat and thrive on any food substance that is adequately nutrient. Taste and variety and meal satisfaction are of little moment in such nutritional studies.

In human nutrition, the joy of eating, and especially the satisfaction of having eaten well, play an important role. Frequently, though physiologic hunger has not come about, it is the pleasant memory of the last meal that engenders the appetite.

To add satiety value to the meal, candy may well serve as its last course. Even an otherwise drab meal gains much when topped off by a piece or two of candy.

Confections in the manufacture of which milk, butter, eggs, fruits, and nuts or peanuts are used, are particularly suited for this purpose. This is true not only because of their universal taste appeal, but also because they contribute small amounts of many essential nutrients.

THE NUTRITIONAL PLATFORM OF CANDY

1. Candies in general supply high caloric value in small bulk.
2. Sugar supplied by candy requires little digestive effort to yield available energy.
3. Those candies, in the manufacture of which milk, butter, eggs, fruits, nuts, or peanuts are used, to this extent also—
 - (a) provide biologically adequate proteins and fats rich in the unsaturated fatty acids;
 - (b) present appreciable amounts of the important minerals calcium, phosphorus, and iron;
 - (c) contribute the niacin, and the small amounts of thiamine and riboflavin, contained in these ingredients.
4. Candies are of high satiety value; eaten after meals, they contribute to the sense of satisfaction and well-being a meal should bring; eaten in moderation between meals, they stave off hunger.
5. Candy is more than a mere source of nutrient—it is a morale builder, a contribution to the joy of living.
6. Candy is unique among all foods in that it shows relatively less tendency to undergo spoilage, chemical or bacterial.

*This Platform is Acceptable for Advertising
in the Publications of the
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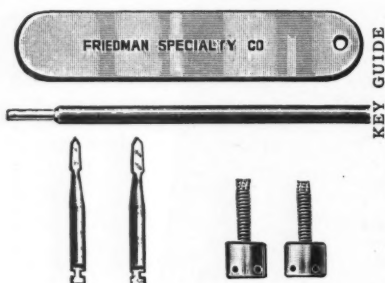
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The Friesco Inlay Remover (also for crowns and bridges) is simple to manipulate. Just drill a hole through the inlay, then use tap to cut thread. This procedure will avoid inconvenience to the patient.

Complete set: \$4.50

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Manufacturers of Wonder Elevators
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arities, he should insist that his betrothed do likewise. Let's be scientific and do it with an inventory.

Dentists Wanted!

The United States Army and the United States Air Force have used a full page advertisement in a weekly news magazine to drum up recruitments for the Dental Corps. The voluntary acceptance of commissions must not be going well. One way that the armed forces might get more dental officers would be to assure them that they had freedom and administrative autonomy in the dental service. The army brass hats, including the high ranking members of the Dental Corps, have fought any legislative changes that would give the army Dental Corps freedom from domination by medical officers. As a sop intended to satisfy the dental profession, the Office of the Surgeon General recommended a change in Army Regulations that would give a bit more administrative freedom to dental officers. Everybody knows that Army Regulations may be changed

back and forth at the whim of the brass. There is no permanent guarantee of dental autonomy in an AR.

The full page advertisement does not give a true picture of conditions in the Army Dental Corps. For example, this statement is not true: "America's active champion of preventive dentistry is the Dental Corps which serves your Army and your Air Force." The fact is that the army is entirely indifferent to and has no practical interest in preventive dentistry. Ask any former soldier how many prophylaxes he received; how many bitewing x-ray examinations. Ask any former dental officer about the mass production, quantity-quota system under which he operated. Dentists were not allowed to practice preventive dentistry and soldiers did not receive such service.

Another statement that is not in line with the facts: "Dentists who wish to extend their training or broaden their professional experience will do well to apply for a reserve commission in the Dental Corps. Active duty increases professional stature whatever

the future may hold." Bunk! Since when did a meeting of a quota in the amalgam line or in the silicate brigade increase professional standing?

It is certainly true that our young men entering the armed services are entitled to the best kind of dental care. In times of peace they should receive gold inlays, jacket crowns, fixed bridges, regular prophylaxes, and frequent full mouth x-ray surveys—the best that dentistry can afford. These services should be performed by dentists who are not hurried, who should be allowed to treat each patient exactly as he would like to idealize treatment in personal practice. The dental officer giving the treatment should have the best equipment and dental instruments and should be free from too much paper work and the domination of medical officers who are generally ignorant of the dental problem. As a government we are so generous with our money for everything else, why not give a little for good dental service which will give value for many years? Socialized dentistry? Yes, it is. But if we are to give any kind of free treatment let's be sure that it is the best.

If the Army and Air Force are looking for dental officers, full page advertisements will not bring them. It's time that the Secretary of Defense appoint a commission of *civilian* dentists to examine the Dental Corps and make recommendations for reform. Not until a new kind of organization is perfected will dentists be happy in military service.

Go Easy on the Prognosis

Everybody has made fun of the pollsters since the election. We should. The thing that appalls me is that the pollsters haven't learned a thing. They're right back where they were before the election, making the positive predictions, the oracle-like announcements, reading crystal balls, and peoples' minds.

Even dentists can learn something from the fallibility of opinion polls and predictions. That something is that we should be cautious in our prognoses. It is virtually impossible to predict how long a dental restora-

In your ORAL HYGIENE this month



Cut Fees Mean Cut Throats

Every ethical dentist is of course interested in adequate fees—except the older man who is semi-retired and practicing because he loves to practice. He is the man who may thoughtlessly cut his fees because he doesn't actually need the money, and in so doing, do as great harm to his colleagues as the unethical dentist who cuts his fees to purposely under-price other dentists in his community. Doctor Harry C. Peake writes a stern reminder to these financially independent men to think of the younger dentists in his community before they quote special prices to accommodate any of their patients.

★ ★ ★
"Children Are Easy to Handle," writes Doctor Edward S. Mack. Perhaps Doctor Mack understands children better than the average dentist. He classifies them in five groups and tells the proper method of approach and treatment for each general classification. If you treat children, you will find this article unusually interesting.

★ ★ ★
"X-Rays Are Dangerous," warns Doctor Lester Hollander, distinguished Medical Director of Pittsburgh Skin and Cancer Foundation. While all dentists know, theoretically,

that this is true, many men become a bit careless and risk very great and very real danger from their X-ray equipment.

★ ★ ★
A denture for \$5.00? . . . That was the accepted fee fifty years ago. Doctor Richard J. Morg reminisces about dentistry of that era.

★ ★ ★
State reciprocity is a subject that arouses a lot of pro and con discussion. Doctor Rolland B. Moore, in an article, "That Mythical Bird: Reciprocity," presents the "pro" side; Doctor Walter C. Stout, in a letter in the Dear Oral Hygiene department, expresses the opposite viewpoint.

★ ★ ★
"Fifty Million Dollars a Year" is a lot of money. That's the amount that was paid to private dentists by the Veterans Administration during the year ending June 30, 1948, according to figures presented by Doctor Bion R. East, recently named director of the Veterans Administration Dental Service. He gives a state-by-state report.

★ ★ ★
"Can You Take Your Own Medicine?" Doctor C. L. Meistroff gives a humorous account of a dentist with a toothache—a subject that is more serious than the author's light touch indicates—the busy dentist's tendency to be rather careless of his own dental health.

tion will give service. The other day I saw the gold foil and the gold inlay that I placed on the state board 27 years ago. They are both in excellent condition and giving good service. Many restorations that I have placed since have failed miserably.

I have seen dentures that violated every law of prosthetics, nonetheless they were giving good service. I have seen other dentures that were in perfect balance and ideal tissue relation that could not be used. I have seen loose and wobbly teeth that were usable for years and severe reactions follow "simple" extractions. "Only the charlatan is sure": that goes for pollsters, columnists, and dentists.—E.J.R.

Dental Research Act

A GREAT STRIDE toward meeting the vast backlog of dental care needs in the United States was made by the 80th Congress with the passage on June 12, 1948, of the Dental Research Act (Public Law 755).

Congress found ample justification for the enactment of the law in the widespread existence of untreated oral conditions among the American people. Data presented demonstrated conclusively that the oral health of the Nation could be improved appreciably within the foreseeable future only by the discovery, through research, of new and improved techniques for preventing and treating dental illness.

Dental caries is the destroyer of most of the teeth lost by persons before their middle thirties. About 90 per cent of American children have one or more decayed teeth by the time they enter school, and at 16 most of them have lost one or more of their permanent teeth. After the age of approximately 35, pyorrhea—a disease affecting the supporting tissues around the teeth—becomes the chief menace to oral health.

The volume of needed dental treatment is so large nationally as to exceed by far the man-hours of dental skill available at present for meeting it. Only through extended research in the field of dentistry, therefore, can new techniques be developed which

may compensate, to some extent, for the lack of dental manpower. Dental research, adequately financed, may reasonably be expected to discover, ultimately, the causes and preventives for dental caries, pyorrhea, and other diseases of the oral cavity.

In the face of the facts elicited at committee hearings on proposed dental research legislation, Congress, after having given careful consideration to the other bills with similar

purposes presented during its 1948 Session, enacted H.R. 6726 into law. Designed to lay a sound basis for a dental research program, the Dental Research Act closely parallels the National Heart Act in many of its provisions.

It amends the Public Health Service Act by establishing within the Service a National Institute of Dental Research, occupying a position similar to that of the Cancer and Heart In-

Only DENTA PEARL

Shade by AGE-FREQUENCY



APPEARANCE INSURANCE

Young or old, light or dark, translucent or opaque—there's a Denta Pearl "Age-Frequency" shade for every patient. The A-F system is simple, time-saving and accurate—A-F shade numbers correspond to the patient's age*... shades on the A-F guide progress from light to dark from left to right... and for the first time, you have opaque shades on the guide to match non-translucent human teeth. The A-F shade system, Doctor, is truly the first to correct the obvious shortcomings of previous shade guides. And with the elimination of all guesswork, shade matching becomes a pleasure instead of a chore.

*In 70% of partial denture cases



JUSTI

Rlastic teeth offer:

Mold by FRAME HARMONY

Patient's HEIGHT	WIDTH PATIENT'S FRAME		
	NARROW	MEDIUM	WIDE
TALL 6' or more	TYPE 5	TYPE 9	TYPE 6
MED. 5'6" — 6'	TYPE 3	TYPE 2	TYPE 1
SHORT 5'6" or less	TYPE 7	TYPE 8	TYPE 4

GENETICALLY CORRECT

Accepted laws of Genetics show that the relative length and width of human teeth will be proportionate to the individual's skeletal structure. Therefore, it is as incongruous to choose a short, broad tooth for a tall, narrow-framed man as it is to expect him to have short, stubby arms and legs. Denta Pearl Frame Harmony* is a simple system that quickly classifies patients by their skeletal height and width—then indicates a natural-looking, life-like Denta Pearl tooth of correct proportions to insure harmony and adequate disguise of artificiality.

*Write for the Frame Harmony Selector Sheet

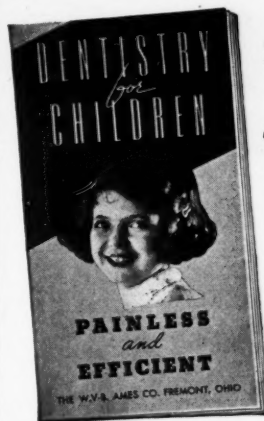
Products for Better Dentistry

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stitutes. The Institute is empowered, in general, not only to conduct basic and applied research in the dental field, but to make grants-in-aid to public and private institutions for research projects which, in the opinion of the Surgeon General and the National Advisory Dental Research Council, promise to make valuable contributions to the knowledge of oral diseases and conditions. The Act also provides for the establishment of fel-

lowships and traineeships in the Dental Research Institute and for the setting up of traineeships in other public and nonprofit institutions through grants given by the Institute.

Unlike the Heart Act, however, the Dental Research Act contains no specific authorization for grants-in-aid for the establishment of control programs in States and communities; furthermore, in contrast to the Heart Act, it provides for a definite ceiling



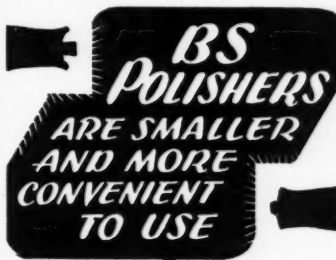
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on the appropriation authorized for carrying out the purposes of the Act —\$750,000 for each fiscal year, beginning with the year 1948-1949.

In general, the duties given to the Surgeon General by the Dental Research Act are quite similar to those he is required to perform under the National Heart Act. These duties include: conducting and fostering research on oral diseases and conditions; coordinating such research both within and outside the Institute of Dental Research; obtaining con-

sultation services for the Institute's staff from experts in dental diseases; providing fellowships; cooperating with State health agencies in the prevention and control of dental diseases; and providing training and instruction and establishing traineeships in the Institute and, through grants, in public and non-profit institutions.

The structure and functions of the National Advisory Dental Research Council are parallel in every respect to those of the National Advisory Heart Council, except that, with re-

gard to the makeup of the former, it is specified that of the six members to be appointed from among persons who are outstanding in the study, diagnosis, or treatment of dental diseases four must be dentists.

Finally, the Dental Research Act authorizes the appropriation of not more than \$2,000,000 for the construction and equipping of the Dental Research Institute.

From *Month. Bull. Indiana State B. of Health* 51:231-232 (October) 1948.

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